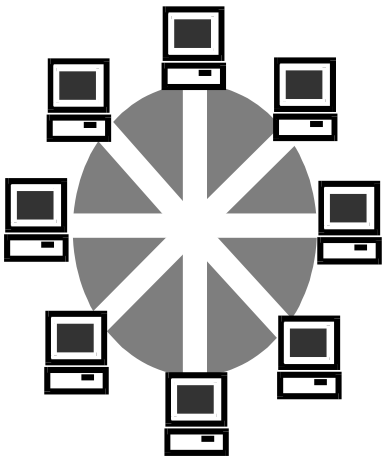
802.11g 54M WLAN

Internet Broadband Router

User Manual



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Content

1. Introduction

This 802.11g 54M Wireless LAN Broadband Router is an ideal solution for wireless/wired Internet surfing and office resources sharing. It provides the fast, robust and flexible features with high transmission rate up to 54Mbps bandwidth in the 2.4GHz frequency. Not only connect with 802.11g devices, it is backward compatible with 802.11b products and can be worked under .11b and .11g mixed environments. It employs WEP encryption to ensure a more secure wireless connection. With web-based configure interface, users can easily build up wire or wireless connection within minutes.

Besides, with firewall function, the Wireless LAN Broadband Router can always protect your LAN from outsider's break-ins and yet expose your local servers such as Web Server, E-mail Server, FTP server, for remote access by Virtual Server or DMZ setting.

1.1 Features

Wireless – Built in with IEEE 802.11g 54Mbps Access Point

- Complies with 2.4GHz 802.11g Standard
- Backward compatible with 802.11b products
- Up to 54Mbps data rate, auto fallback under noisy environment
- Support 802.1x Authentication feature and 64/128-bits WEP Encryption

Router – Built in with 4 Port 10/100M Internet Broadband Router

- 1 port 10/100M WAN and 4 ports 10/100M switch LAN (RJ-45) interface
- Quick Setup Wizard enable user to setup internet connection within 3 steps
- Advanced Access control based on URL, IP, Service Port and MAC address
- ALG function for on-line gaming, MSN, conference and P2P software
- Configurable through User-friendly web base management interface
- (Optional) With reverse SMA Antenna connector increase flexibility
- Intruder event log by packet inspection features
- DMZ and Virtual Server Mapping support
- UPnP function Supported

1.2 Specification

Model: 802.11g 4-Port Wireless LAN Broadband Router

Radio: Complies with IEEE 802.11b/g

Frequency Band: 2.412-2.462GHz (U.S.)
2.412-2.484GHz (Japan)
2.412-2.472GHz (ETSI)

Modulation TYPE: BPSK, QPSK, CCK, 16-QAM, 64-QAM

Operating Channels: 11 channels (US) 13 channels (ETSI) 14 channels (Japan)

Data Rate: 1 / 2 / 5.5 / 6/9/11/12/24/36/48/54Mbps

Output Power: 18dBm@11Mbps; 14dBm@54Mbps

Receive sensitivity: Min.80dBm for 11Mbps (@BER 8%)
Min. -70dBm for 54 Mbps (@BER 10%)

Current Consumption: 3.3V, TX mode 400 mA (Max.)
RX mode 250 mA (Max.)

Media	100BASE-TX: UTP/STP Cat. 5
No. Of Port	WAN: 1x 10/100M RJ-45 port, LAN: 4 x 10/100M RJ-45 ports Reset: 1 x Reset Button , USB :1xPrinter Server
Auto MDI/MDIX	Yes
PPPoE/PPTP Client	Yes
Static /Fixed IP	Yes
DHCP Server/Client	Yes
UPnP	Yes
DMZ Host	Multi-DMZ Host
Routing	Static, RIP I/II, Transparent mode support
Event Log	System / Security Log, Remote Security Log
Firewall	DoS, URL Blocking, Mac Blocking, Service Port Blocking, IP Address Blocking, Deny/Allow Ping, Service Time allocation
VPN	PPTP, IP Sec pass through
Management	Local Web-based configuration, Telnet
LED Indicator	Power, Diag, WLAN, Link/Act.

Environmental Temperature	Storage -20°C to 60°C Operating 0°C to 45°C
Humidity	10%~90%, non condensing
Power Consumption	Input : 100V, 50/60Hz / 120V, 60Hz / 230V, 50Hz / 240V, 50Hz Output : DC7.5V / 1000mA
Conformance	FCC class B, CE mark class B

1.3 Package Contents

1. One WLAN Broadband Router
2. One CD-ROM (User Manual on CD)
3. One Quick Installation Guide
4. One Power Adapter
5. (Optional)One Reverse SMA Antenna

2. Hardware Installation

2.1 Product Description

You can place this Wireless LAN Broadband Router horizontally or hang it on the wall.

2.1.1 Front Panel and LEDs

Front Panel :

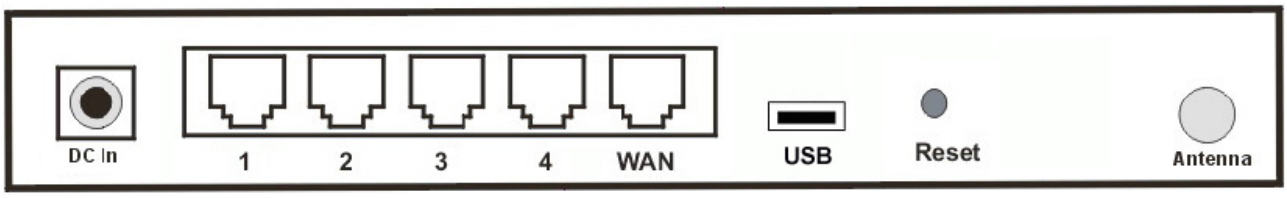
With its Diagnostic LEDs, you could easily get status information find out where the problem is.

The LEDs are explained in the following tables.

Label	Color	Status	Meaning	Number of LEDs
Link/Act.	Green	On	Link On	4 x LAN,1 x WAN
		Blinking	Activity	
		Off	Link Off	
Power	Green	On	Power ON	1
		Off	Power OFF	
Diag	Green	On	Work mode fail	1
		Off	Normal work mode	
WLAN (Link)	Yellow	On	Link On	1
		Off	Link Off	

2.1.2 Rear Panel

The following graphic shows the rear panel of Wireless Router.



- DC In: To connect the adapter to receive power.
- LAN 1~4: To connect networked PC or uplink to Switch or Hub.
- WAN: To connect the Cabel/DSL modem via Cat.5 RJ-45 cable.
- USB: To connect the USB Printer
- Reset: Pressing the Reset button for more than 5 seconds, the router will restore to factory default setting.
- Antenna Connector: (Optional, only exists in the model with reverse SMA connector) This is standard reverse SMA connector where any antenna with reverse SMA connector can connect to this Wireless LAN Broadband Router.

2.2 Getting Started

Please refer to the following sections of this manual for additional information about setting up a network.

2.2.1 System Requirement

Before you getting started, make sure that you meet the following requirements.

1. An Internet connection through a cable or DSL modem
2. A computer with an Ethernet network card
3. Your Windows CD, if your computer is running Windows 95, 98, or ME
4. UTP network cable with RJ-45 connector
5. Either Microsoft Internet Explorer 4.0 (or above version) or Netscape Navigator 4.0 (or above version)
6. For Wireless Connection, you need Wireless LAN Card / USB Adapter.

2.2.2 Before Installation

Before you start to connect your router to any network device, make sure you get the following values from your ISP. You will need those values to setup the Router and configure you networked PCs to accept the IP address the Router chooses to assign them.

- PPPoE User Name and Password or Fixed Internet IP Address assigned by your local ISP
- Your Subnet Mask
- Your Default Gateway
- Your Primary DNS IP address

You are supposed to have all those information mentioned above from your ISP. If not, contact your ISP and they will be able to supply all the information you need.

2.2.3 Setting Hardware Connection

Follow the steps listed below to install your Router when you have all the information mentioned above.

Step 1. Power all devices down.

This should include your PCs, Cable or DSL modem and the Router.

Step 2. Connecting a Cable Modem or DSL Modem.

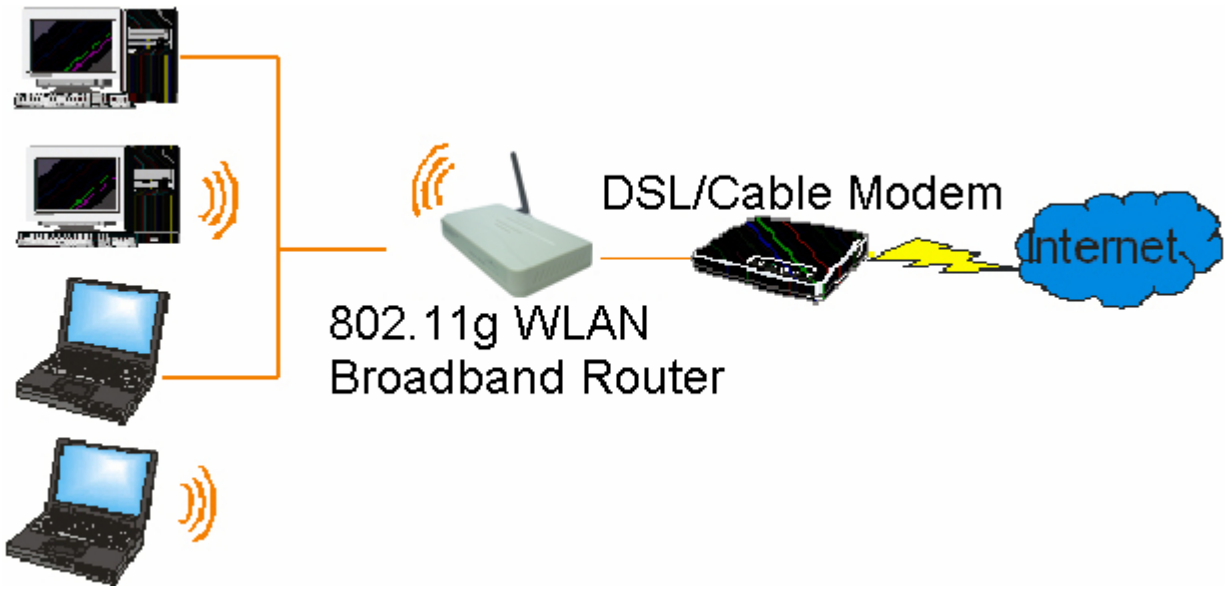
Connect your Cable or DSL modem to the WAN port on the rear panel.

Step 3. Connect the Wireless Router to your PCs.

Connect computers directly to the Router on ports 1~4 on the rear panel. If you have more than 4 computers need to be connected, connect a hub or a switch (using its uplink port) and connect additional computers to that device.

Step 4. Power on.

Plug the power cord into the power jack. And power on computers.



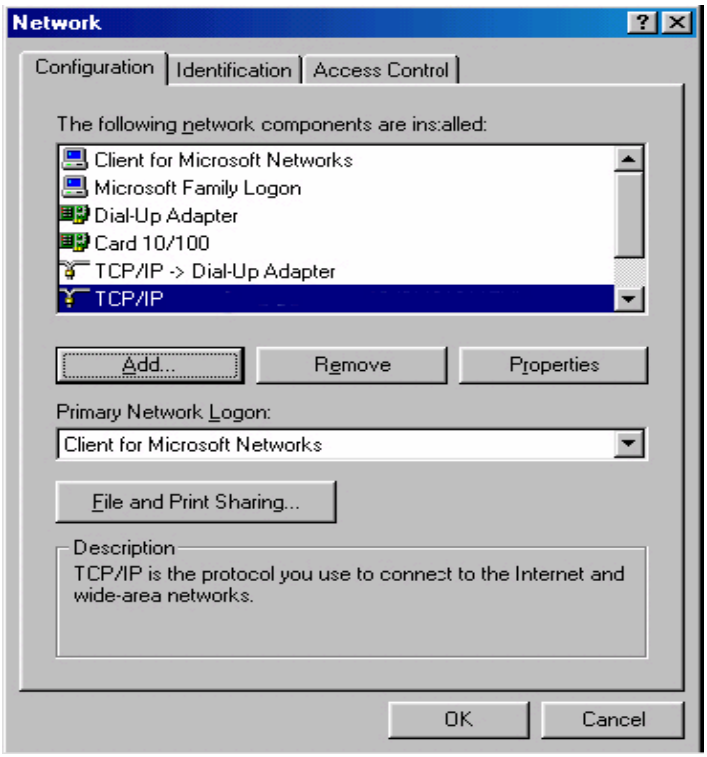
2.2.4 Configure your computer

- **Windows 95/98/ME**

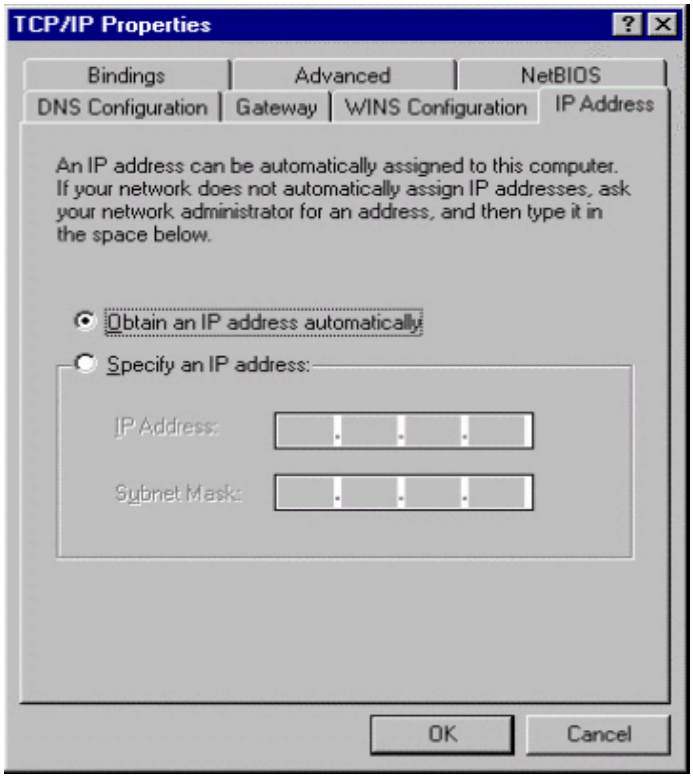
Step 1. TCP/IP Configuration

After you have completed the hardware setup by connecting your devices, you need to configure your computer to connect to your Router.

1. From the Windows desktop, click the “Start” button and choose “Settings”, then click “Control Panel”.
2. From “Control Panel”, double-click the “Network” icon.
3. In the “Network” window, under the “Configuration” tab, double-click the “TCP/IP” entry that is listed with your network card.



4. On the “Internet Protocol (TCP/IP) Properties” dialog box, make sure “Obtain an IP address automatically” and “Obtain DNS server address automatically” are selected. If not, select them and click “OK” and lose window.



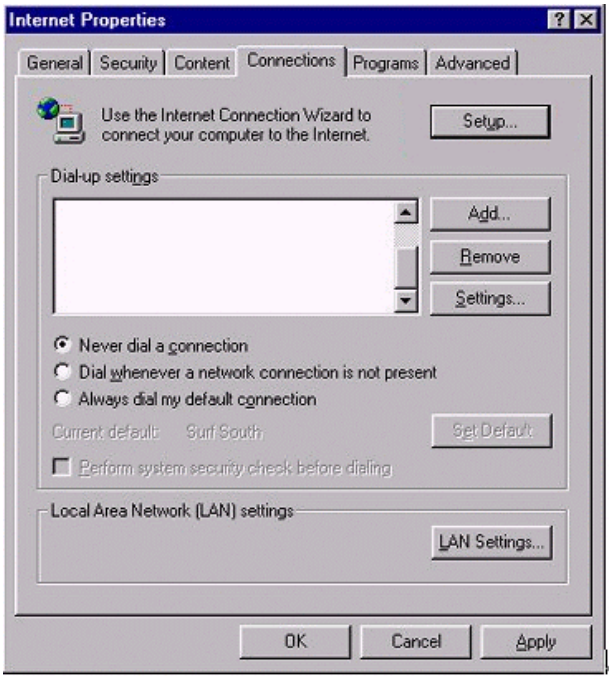
5. Locate your IP address and Subnet Mask. Type them in the spaces provided below.
6. Click the “Gateway” tab and record the numbers listed under “Installed gateways.”
7. Click the “DNS Configuration” tab. Locate the DNS servers listed under “DNS Server Search Order”. And Click “OK”.
8. System may need your Windows 95/98/ME CD to copy some files. After it finishes copying, please restart your system.

Step. 2 Disable HTTP Proxy

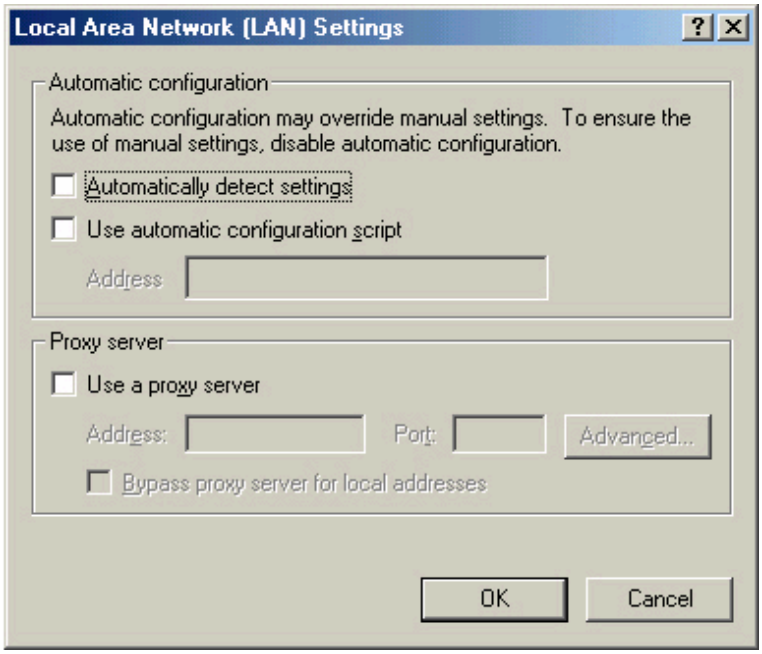
- **Internet Explorer**

1. Open Internet Explorer and click the stop button. Click “Tools” then “Internet Options”.

2. In the “Internet Options” window click the “Connections” tab. Then click the “LAN Settings” button.



3. Clear all the checkboxes.



4. Click “OK”, and then click “OK” again to close the “Internet Options” window.

- **Netscape**

1. Open Netscape and click the stop button. Click “Edit”, then click “Preferences…”
2. In the “Preferences” window, under “Category” double-click “Advanced”, then click “Proxies”. Select “Direct connection to the Internet.” Click “OK”.

Step. 3 Obtain IP Settings from Your Router

1. Click “Start”, then “Run…”. Type “winipcfg” to open the IP Configuration utility.
2. Click the “Release All” button.
3. Click the “Renew All” button
4. Verify that your IP address is now 192.168.1.xxx, your Subnet Mask is 255.255.255.0 and your Default Gateway is 192.168. 1.1. Click “OK” to close the “IP Configuration” window.

- **Windows NT/2000/XP**

Step 1. TCP/IP Configuration

After you have completed the hardware setup by connecting your devices, you need to configure your computer to connect to your Router.

1. From the Windows desktop, click the “Start” button. Choose “Settings”, then click “Control Panel”.
2. From “Control Panel”, double-click the “Network & Dial-Up Connections” icon.
3. Double-click the icon that corresponds to the connection to your router.
4. Click “Properties” and double-click “Internet Protocol (TCP/IP)”.
5. On the “Internet Protocol (TCP/IP) Properties” dialog box, make sure “Obtain an IP address automatically” and “Obtain DNS server address automatically” are selected. If not, select them and click “OK” and close window.

Step. 2 Disable HTTP Proxy

- **Internet Explorer**

1. Open Internet Explorer and click the stop button. Click “Tools” then “Internet Options”.
2. In the “Internet Options” window click the “Connections” tab. Then click the “LAN Settings” button.
3. Clear all the checkboxes.
4. Click “OK”, and then click “OK” again to close the “Internet Options” window.

- **Netscape**

1. Open Netscape and click the stop button. Click “Edit,” then click “Preferences…”
2. In the “Preferences” window, under “Category” double-click “Advanced”, then click “Proxies”. Select “Direct connection to the Internet”. Click “OK”.

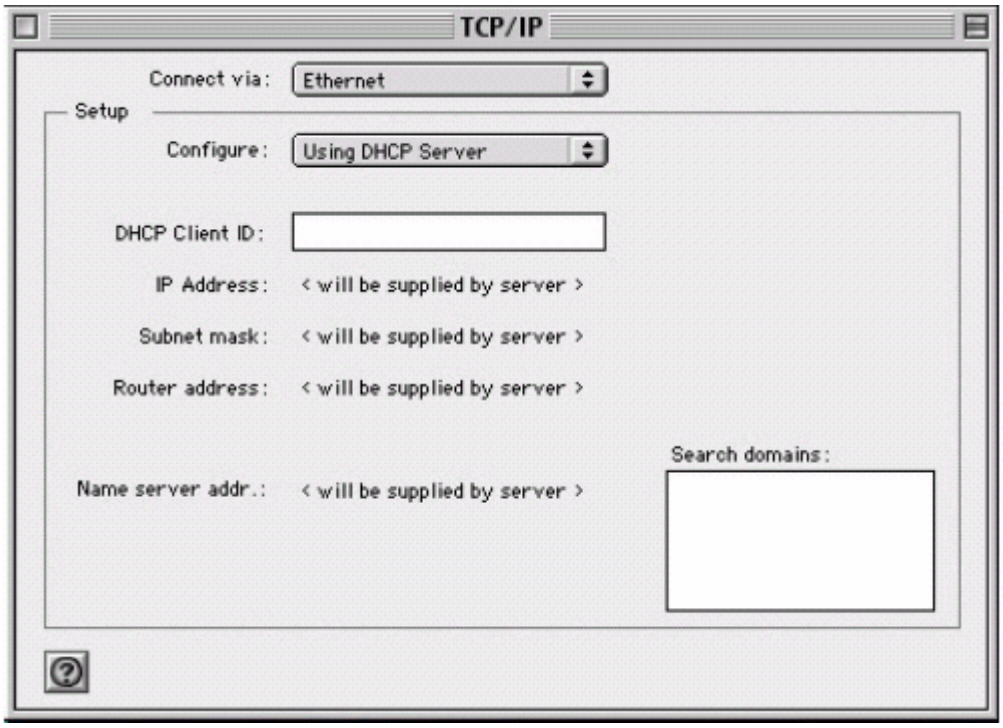
Step. 3 Obtain IP Settings from Your Router

1. From the Windows desktop, click the “Start” button, then “Programs“, then “Accessories” and then click“Command Prompt”.
2. **Type “IPCONFIG /RELEASE” and press “Enter”.**
3. Type “IPCONFIG /RENEW” and press “Enter”.
4. Verify that your IP address is now 192.168.1.xxx, your Subnet Mask is 255.255.255.0 and your Default Gateway is 192.168.1.1. Click “OK” to close the “IP Configuration” window.
5. Type “Exit” and close window.

- **MAC OS 7.X or above**

Step 1. TCP/IP Configuration

1. Pull down the Apple Menu. Click “Control Panels” and select TCP/IP.
2. In the TCP/IP dialog box, make sure that “Ethernet” is selected in the “Connect Via.”field. Make sure “Using DHCP Server” is already selected in the “Configure” field and close window.



2. Another box will appear asking whether you want to save your TCP/IP settings. Click Save.

Step. 2 Disable HTTP Proxy

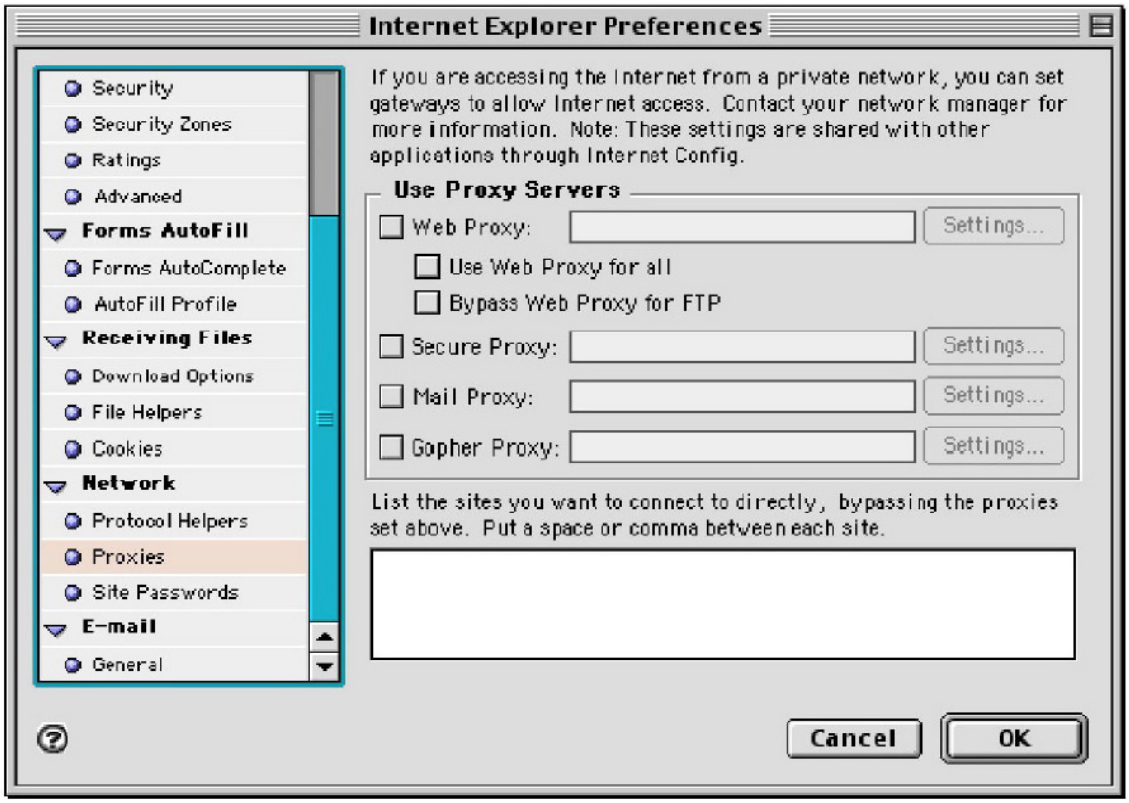
- **Internet Explorer**

1. Open Internet Explorer and click the stop button. Click "Edit" then "Preferences"

2. Select “Proxies” and uncheck all checkboxes and click “OK”.

- **Netscape**

1. Open Netscape and click the stop button. Click “Edit”, then click “Preferences…”
2. In the “Preferences” window, under “Category” double-click “Advanced”, then click “Proxies”. Select “Direct connection to the Internet”. Click “OK”.

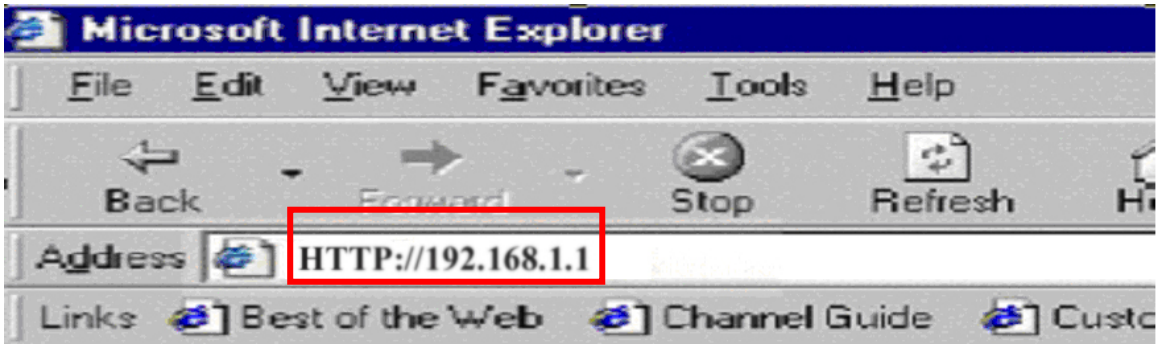


Step. 3 Obtain IP Settings from Your Router

1. Pull down the Apple Menu. Click “Control Panels” and select TCP/IP.
2. In the TCP/IP window, your new settings will be shown. Verify that your IP address is 192.168.1.xxx, Subnet Mask is 255.255.255.0 and Default Gateway is 192.168.1.1. Close Window.

3. Using Configuration Menu

After configuration of your network, you can access the Router via Web browser and type the IP Address of Router. The default IP address of this Router is http://192.168.1.1.

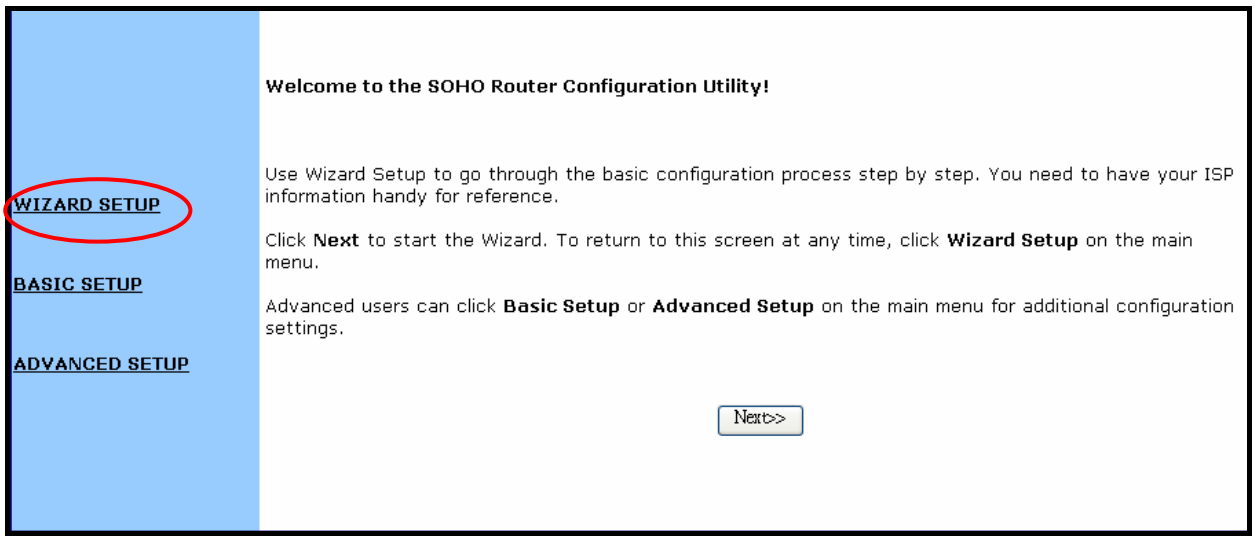


Please note that if you have changed the default IP Address assigned to the Router, make sure to enter the correct IP Address. **The default "User Name" and "Password" are both "admin".** Please refer to "Administrator Settings" page to check how to change your password.

3.1 Setup Method

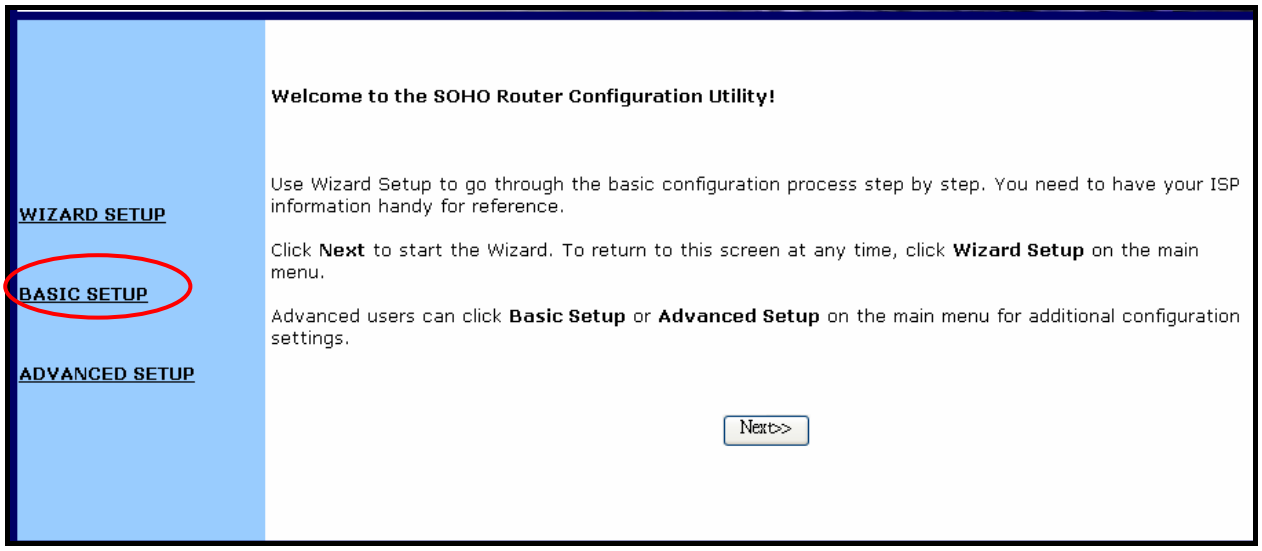
You can choose WIZARD SETUP for step-by-step Installation or choose BASIC SETUP for basic configuration or choose ADVANCE SETUP for advanced configuration.

1. Setup Wizard

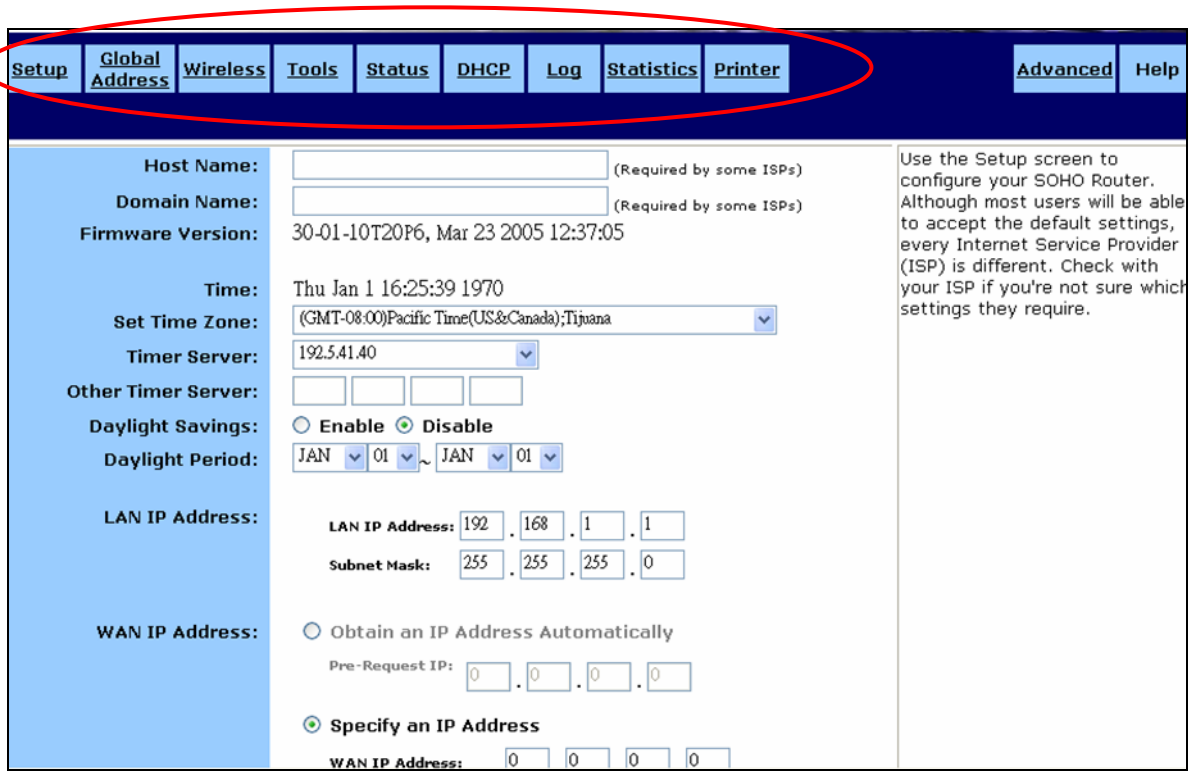


If you choose WIZARD SETUP , please refer to Quick Installation Guide for step by step instruction.

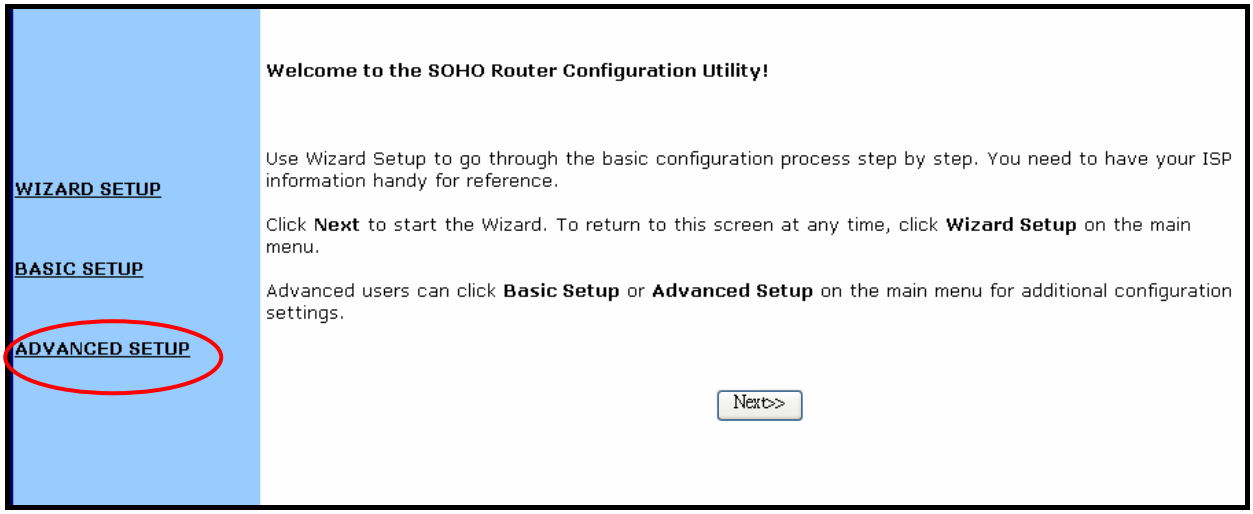
2. Basic Setup



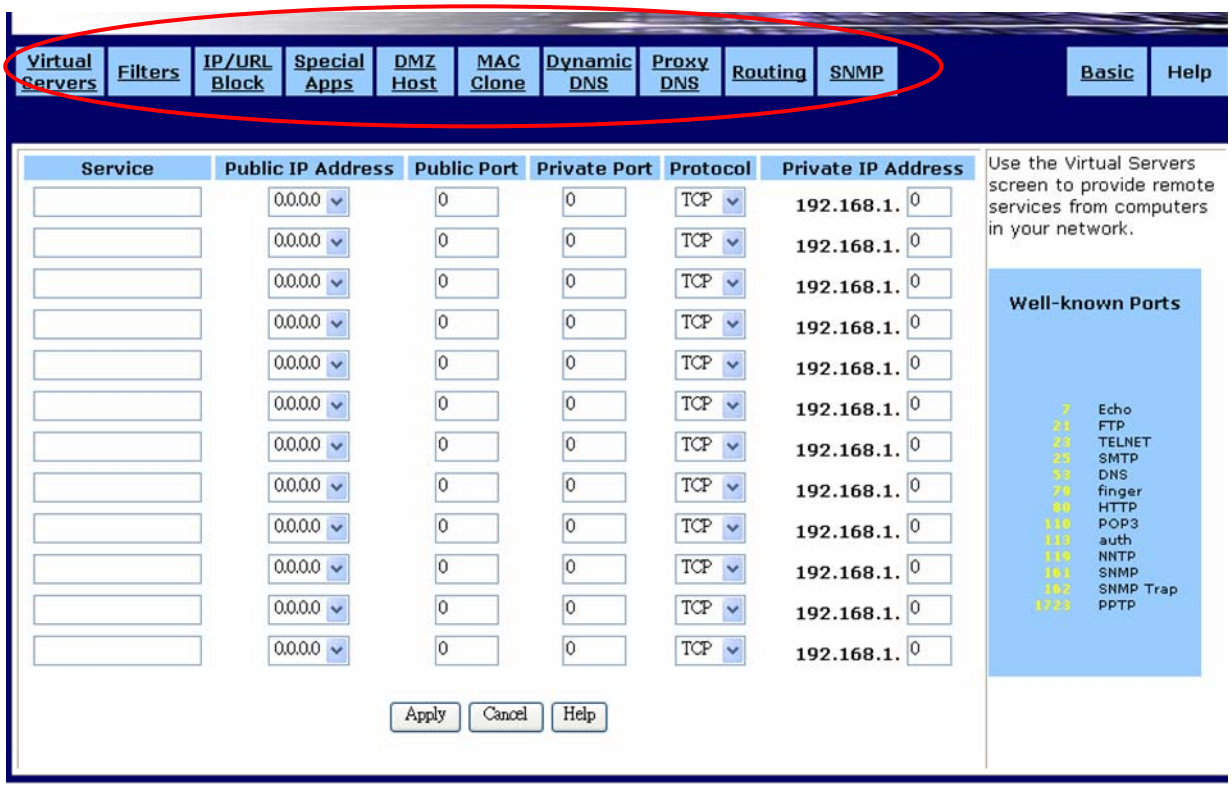
If you choose **BASIC SETUP** , you will see setup screen as below. Click the upper frame to change settings.



3.Advanced Setup



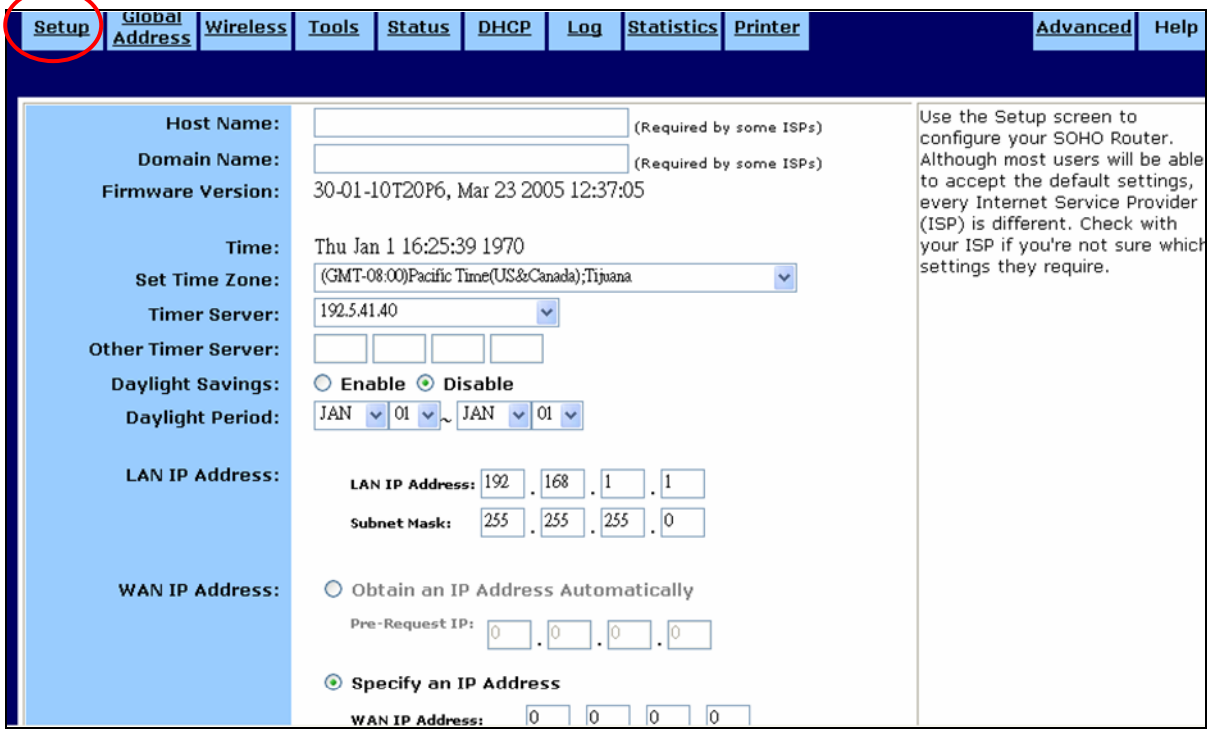
If you choose **ADVANCE SETUP** , you will see setup screen as below. Click the upper frame to change settings.



3.2 Basic Setup

3.2.1 Setup Router

In this page, you can configure your WLAN Router.



Host Name:

Provide a host name (also called system name or account name) if your ISP requires this information.

Domain Name:

Provide the ISP domain name (e.g. xyz.isp.com) if your ISP requires this information.

Firmware version:

The current firmware version is shown for your convenience.

Time:

Select your **Time Zone** and **Enable** or **Disable** the application of Daylight Savings Time.

LAN IP Address:

These fields show the **LAN IP Address** and the **Subnet Mask** as seen by others on your Local Area Network (LAN). Most users will not need to change these values.

If you change the LAN IP Address with the DHCP server running, you'll need to restart your client machines. If you change the LAN IP Address without the DHCP server running, you'll need to manually reconfigure your clients' IP addresses.

WAN IP Address:

Choose either **Obtain an IP Address Automatically** (most users)(you can specify the IP you want to get by filling the **Pre-Request IP**) or **Specify an IP Address** (if your ISP assigns static IPs). If you choose the second option, type in the Wide Area Network (**WAN**) **IP Address**, **Subnet Mask**, **ISP Gateway Address**, and **DNS values**. You can obtain those information from your ISP.

PPPoE Login:

If your ISP uses Point-to-Point Protocol over Ethernet (PPPoE), choose **Enable**; otherwise, choose **Disable**. PPPoE allows your ISP to authenticate your connection by requiring you to submit a username and password.

Type the **User Name** and **Password** provided by your ISP in the boxes. For PPPoE connection types, you can select either **Connect on Demand** or **Connect Manually**. And moreover, if you want to limit the idling minutes, select **Max Idle Time** and type a maximum number in minutes. Change **MTU** to specify the largest size for network transmission. It is recommendated to use default value 1492.

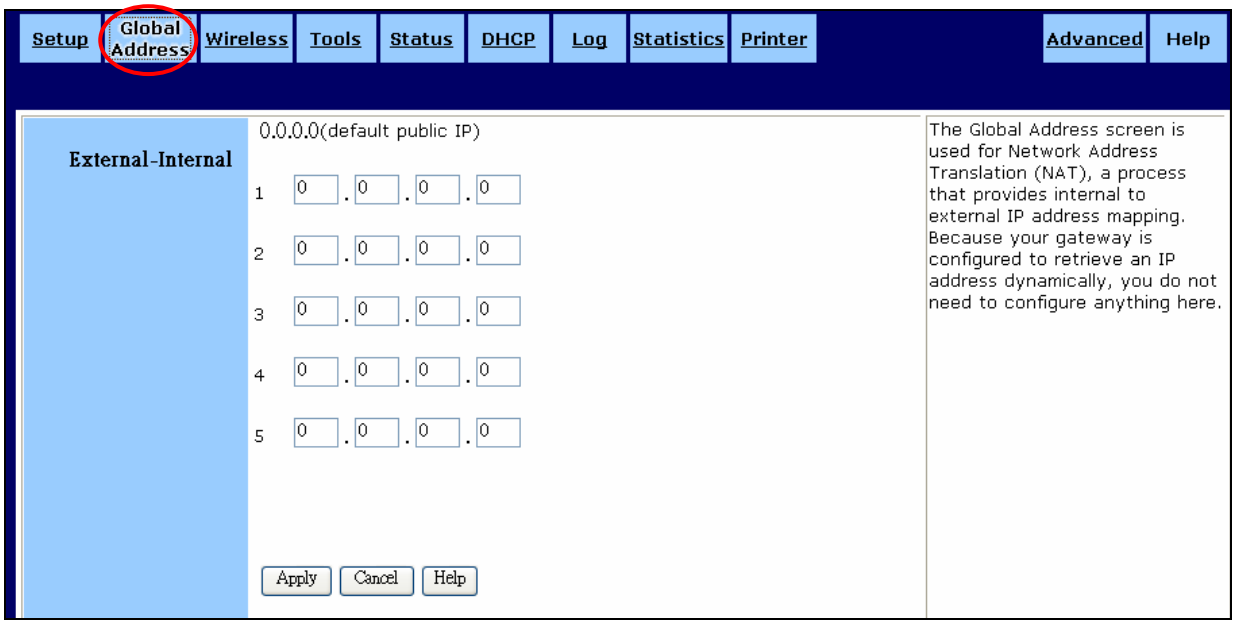
UPNP:

Universal Plug and Play (UPnP) enable devices such as PCs, routers or other devices to be plugged into a network and automatically know about each other.

Click **Apply** when you finish choosing your settings, or click **Cancel** to undo your changes.

3.2.2 Global Address

Use the Global Address screen for Network Address Translation (NAT), a process that provides internal to external IP address mapping. If your gateway is configured to retrieve an IP address dynamically, you will not need to use this function. On this page, you can set up NAT (Network Address Translation) to provide internal-to-external IP address mappings.



Default Public IP

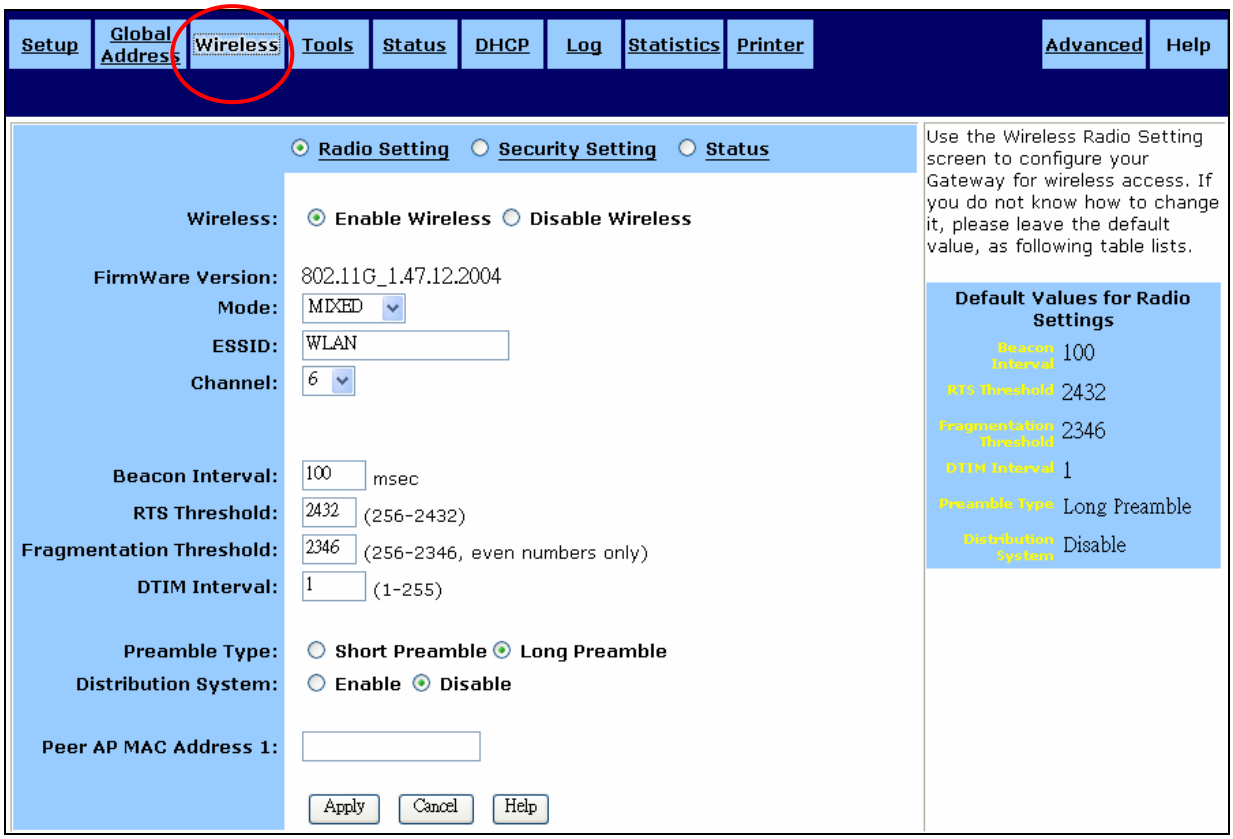
If your gateway is configured to retrieve an IP address dynamically, you will only see the default WAN IP address (specified in the Setup screen); you will not see the sections below.

External-Internal Address Mapping

This section allows you to define global IP addresses for your LAN network. Use the lines in the table to list up to six static, external IP addresses provided by your ISP. Click Apply when you finish entering the IP addresses, or click Cancel to undo your changes.

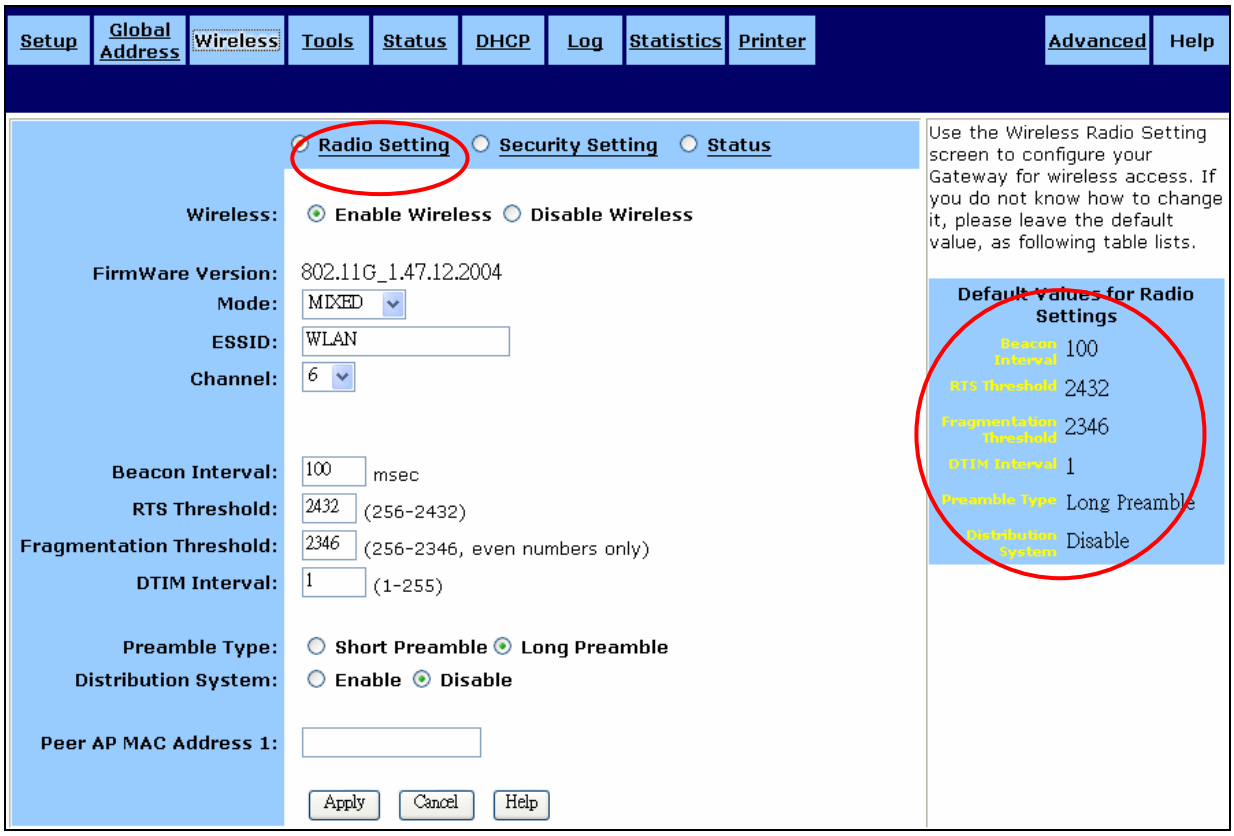
3.2.3 Wireless

Use this screen to configure your gateway for wireless access. Note that the Wireless settings are divided into **Wireless Radio**, **Wireless Security** and **Wireless Status**.



Radio Setting:

Use this screen to configure your Gateway for wireless access**.** If you do not know how to change it, please leave the default value, as following table lists.



Mode:

Select the Wireless Mode your router support. It support three modes: 802.11B, 802.11G, and MIXED which supports both 802.11B and 802.11G.The default value is MIXED

ESSID:

Unique identifier for the Extended Service Set which is shared by client stations in an infrastructure association, such as WLAN-test. It is case-sensitive and cannot exceed 32 characters.

Channel:

Specifies the bandwidth which the wireless radio operates. AP and the client stations that is associated work in one of channels from 1 to 14.

Beacon Interval:

Time interval between beacons broadcast by the Access Point (AP).

RTS Thresold:

Minimum size of data frames above which Request-To-Send (RTS) protocol is used. RTS helps prevent data collision from hidden nodes.

Fragmentation Threshold:

For efficiency in high-traffic situations, large files are split into fragments. This

parameter specifies the fragment packet size.

DTIM Interval:

Number of beacon intervals between successive Delivery Traffic Indication Maps (DTIMs).

Preamble Type:

Shows the length of preamble, either Short (72 bits) or Long (144 bits).

Authentication Type:

Type of authentication used in your wireless network.

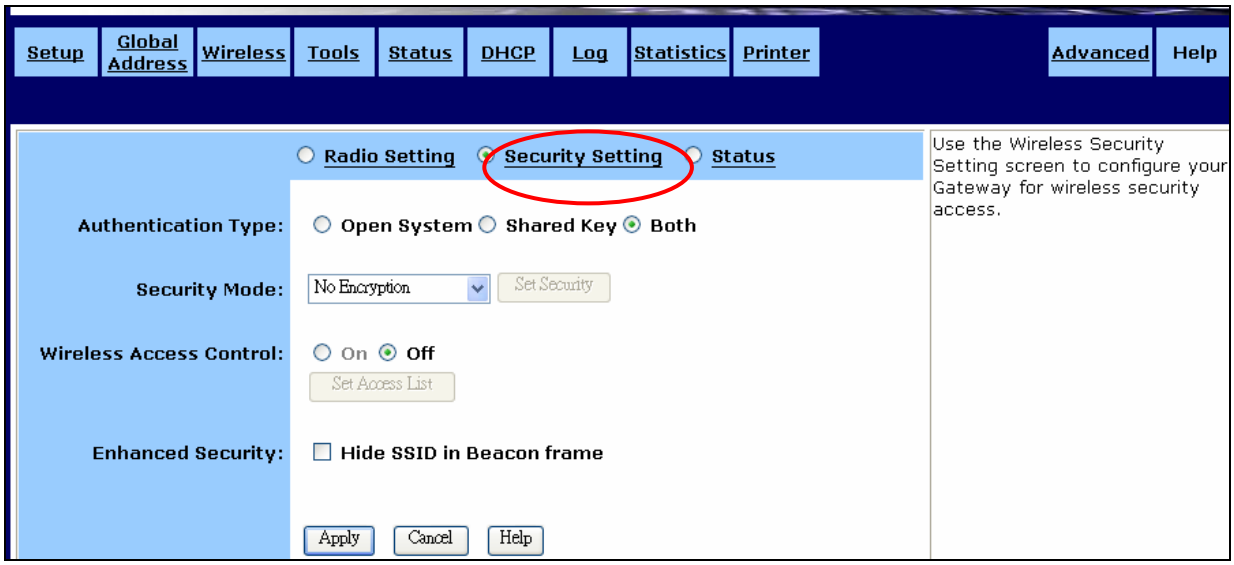
Enhanced Security:

Option to enable additional security measures, like hiding your Service Set Identifier (SSID) or blocking unspecified SSIDs.

Peer AP MAC Address:

When **Wireless Distribution System** is enabled, wirelessly connect Access Points using several MAC Addresses of PC cards, so that you can extend a wired infrastructure to locations where cabling is not available.

Security Setting: Use this screen to configure your Gateway for wireless security access.



Authentication Type:

Select any of **Open System**, **Shared Key** or **Both** authentication algorithm which can be supported by the Access Point.The default value is Both.

Security Mode:

This is regard to the security for wireless access, please select one of the security mode. The default value is No Encryption

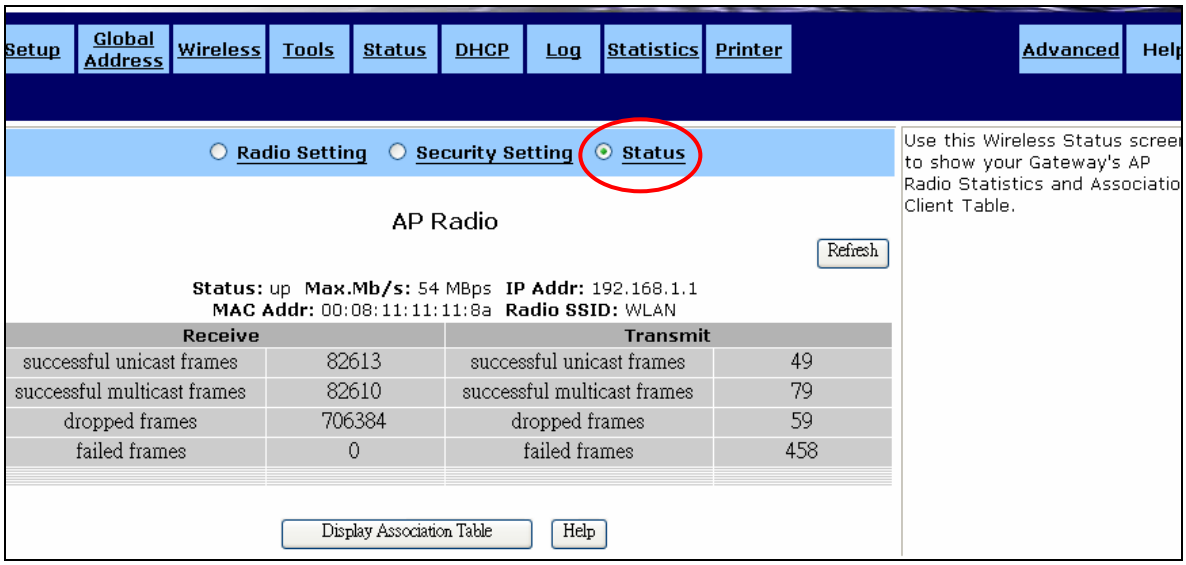
Wireless Access Control:

If you enable Wireless Access Control, then click **Set Access List** to launch the Wireless Control List window.

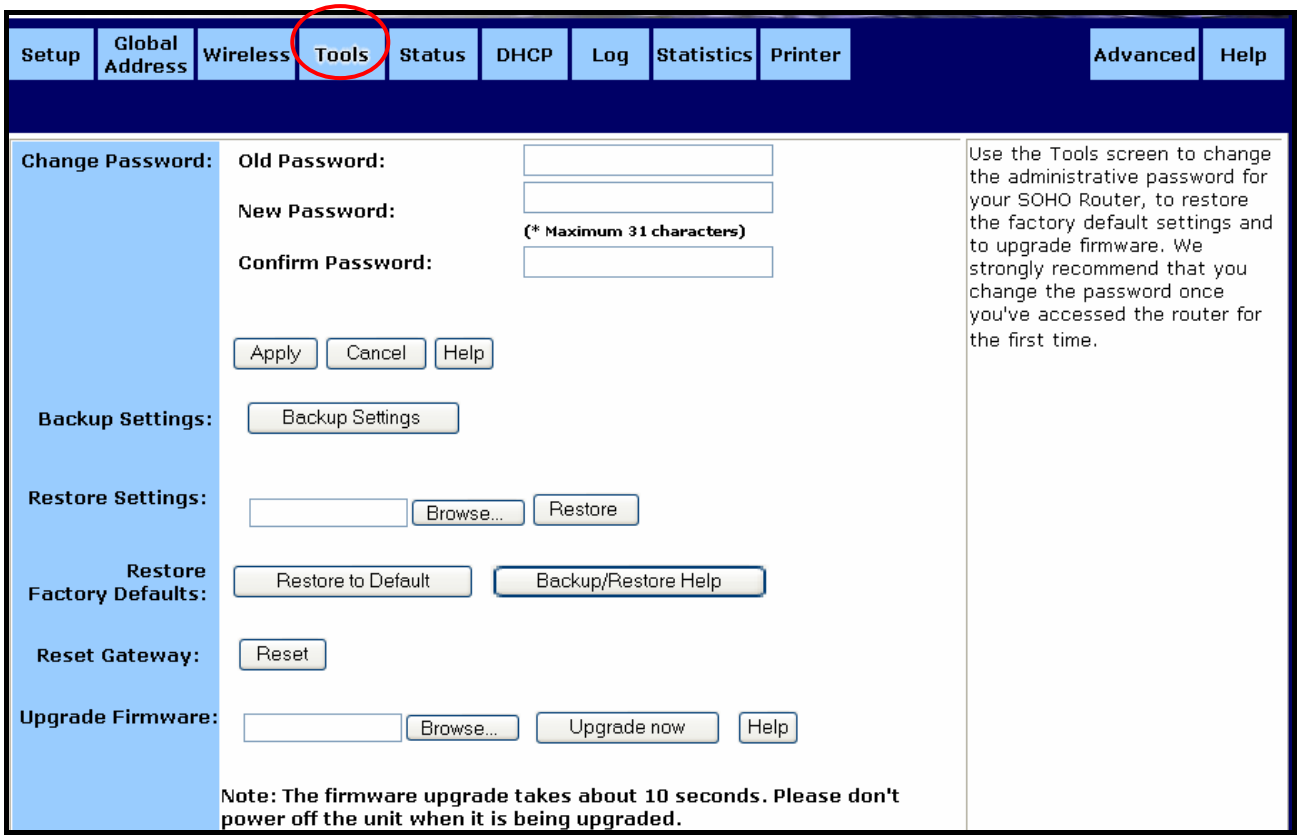
Enhanced Security:

If you choose Enable, you can choose to Hide SSID (Service Set Identifier) in Beacon frame.

Status: This screen is to show your Gateway's AP Radio Statistics and Association Client Table.



3.2.4 Tools:



Change Password:

Change the administrative password for your WLAN Router.

Backup Settings:

Backup the current settings to your local disk

Restore Factory Defaults:

Restore the factory default settings.

Reset Gateway:

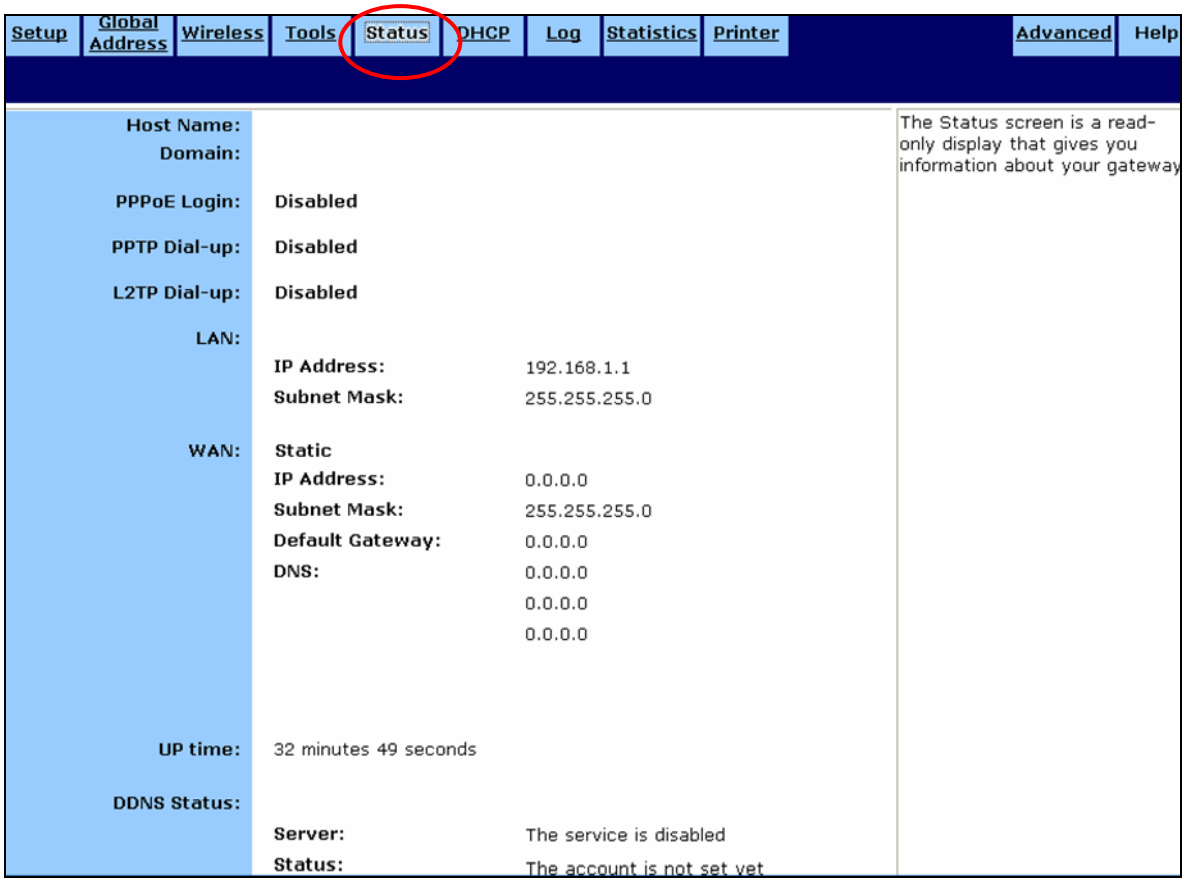
Restart your device or reset the hardware.

Upgrade Firmware:

Upgrade firmware image file that you download from the gateway ‘s website.

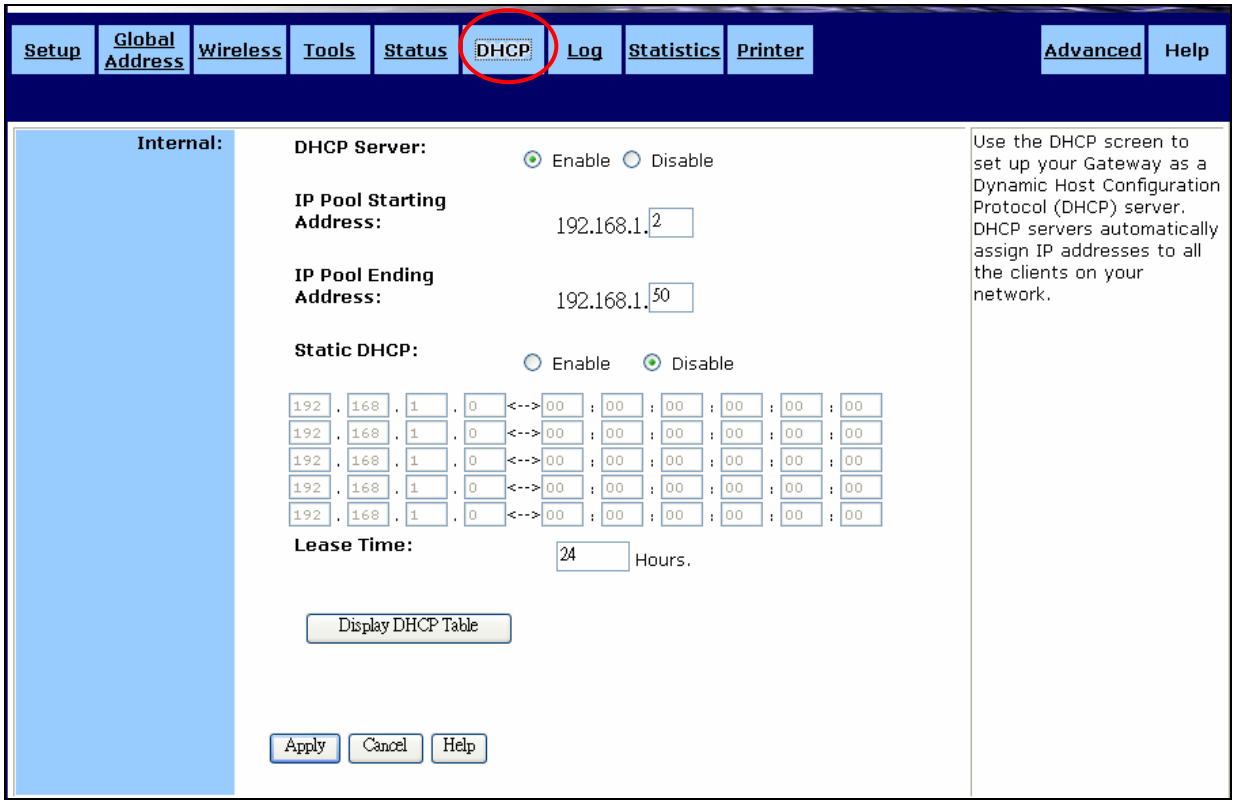
3.2.5 Status:

This page is a read-only display that gives you the information about the gateway.



3.2.6 DHCP:

Use the DHCP screen to set up your gateway as a Dynamic Host Configuration Protocol (DHCP) server. DHCP servers automatically assign IP addresses to all the clients on your network.



DHCP Server

If you choose to enable DHCP, make sure there is not already a DHCP server on your network.

If you don't enable DHCP, you'll need to manually configure an IP address for each computer on your network. If you do enable DHCP, make sure that each computer is configured to retrieve an IP address automatically.

IP Pool Starting Address/IP Pool Ending Address:

Specify the **IP Pool Starting Address** to designate the first IP address that can be assigned to a computer on the network. Similarly, specify the **IP Pool Ending Address** to designate the last IP address that can be assigned.

For example, if you choose 10.10.10.51 as the starting address and 10.10.10.100 as the ending address, the DHCP server will assign addresses to network clients that are between 10.10.10.51 and 10.10.10.100.

Static DHCP:

This is for static mapping of MAC address and IP address assigned by DHCP. Input the MAC address and corresponding IP address into the boxes for each mapping entry.

The IP address in mapping table should be within DHCP pool, otherwise that entry is invalid.

Lease Time

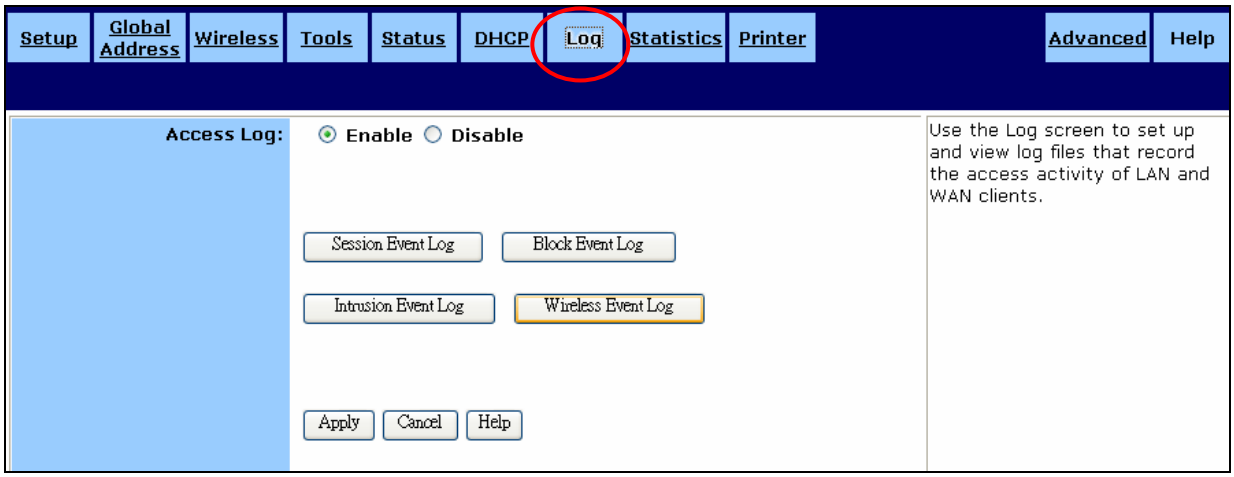
This is the lease time assigned if the computer (DHCP client) requests one. If it set to **0**, the life time of IP assigned by the gateway for client computer will be infinity. Default lease time is 24 hours.

Display DHCP Table

The **DHCP Active IP Table** lists information about the computers that have been assigned IP addresses by the DHCP server.

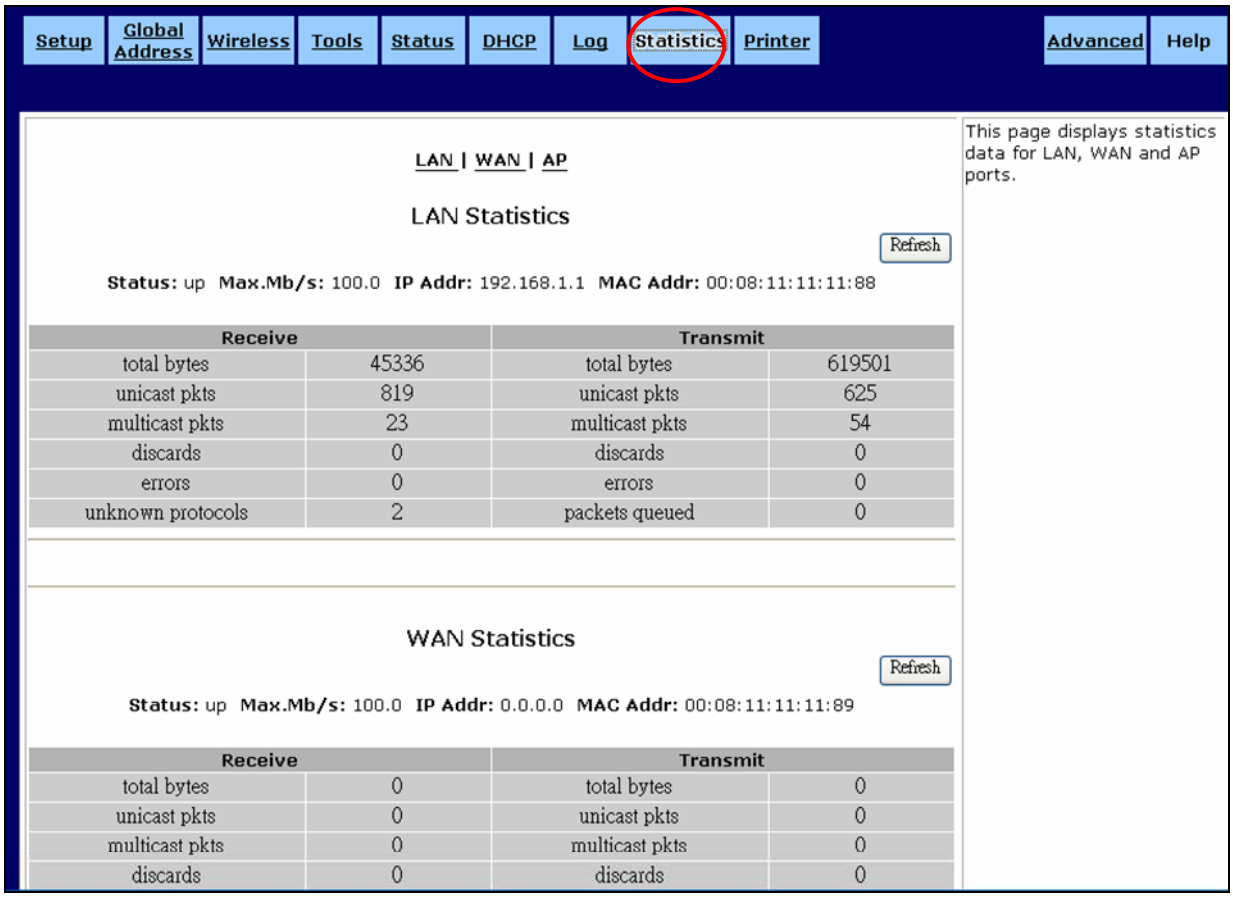
3.2.7 Log:

On this page you can view log files that record the access activity of LAN and WAN clients.



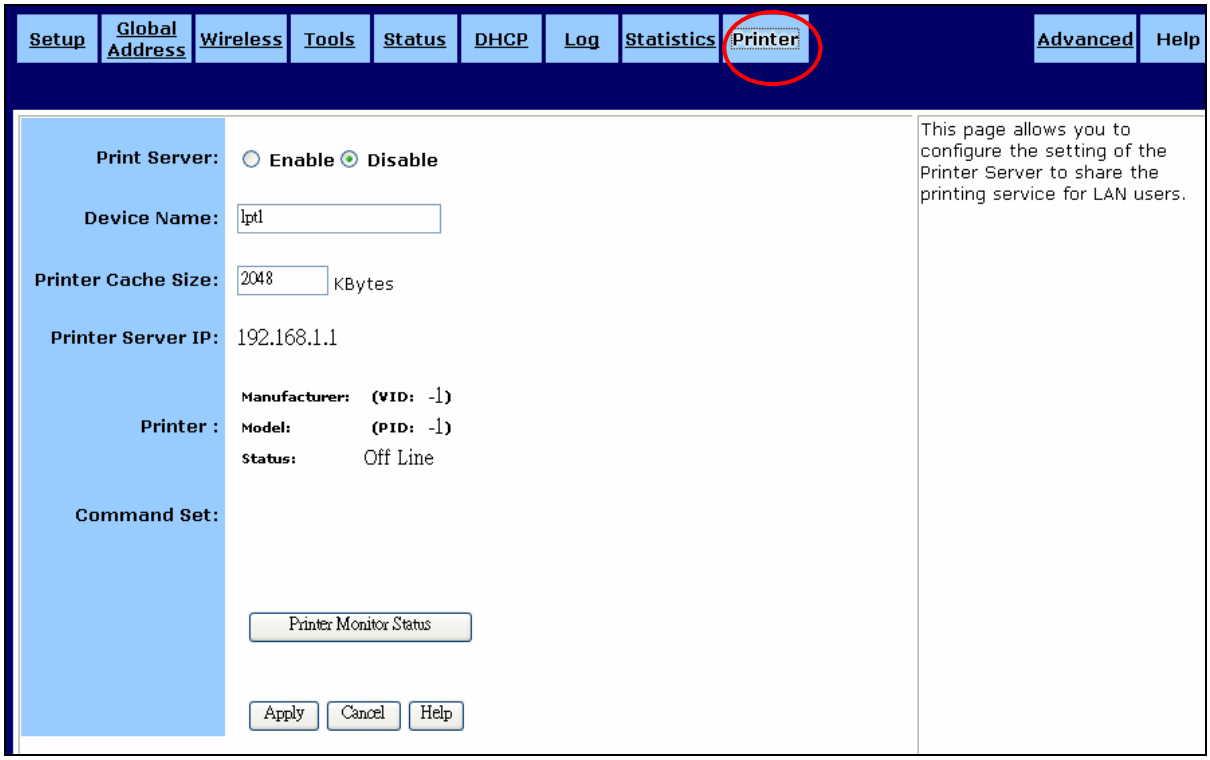
3.2.8 Statistics:

On this page displays statistics data for LAN , WAN and AP ports.



3.2.9 Printer:

This page allows you to configure the setting of the Printer Server to share the printing service for LAN users.



Print Server:

You may choose to Enable or Disable the Print Server.

Device Name:

The name of the print server hardware used for identification purposes. Client PCs should use this name as queue name for printing.

Printer Cache Size:

This field used for system evaluation. If the printer does not work properly, you may augment this value, e.g. 4096, 8192. Suggest use the same value as your printer supported.

Printer Server IP:

This field shows the Print Server IP, which equals LAN IP.

Printer:

This field shows the Manufacturer, VID(Vendor ID), Model, PID(Product ID), Status of current Printer, which connected to the device's USB port.

Command Set:

This field shows you Command Set of the printer. When the printer connected with the print server, it will be shown on it.

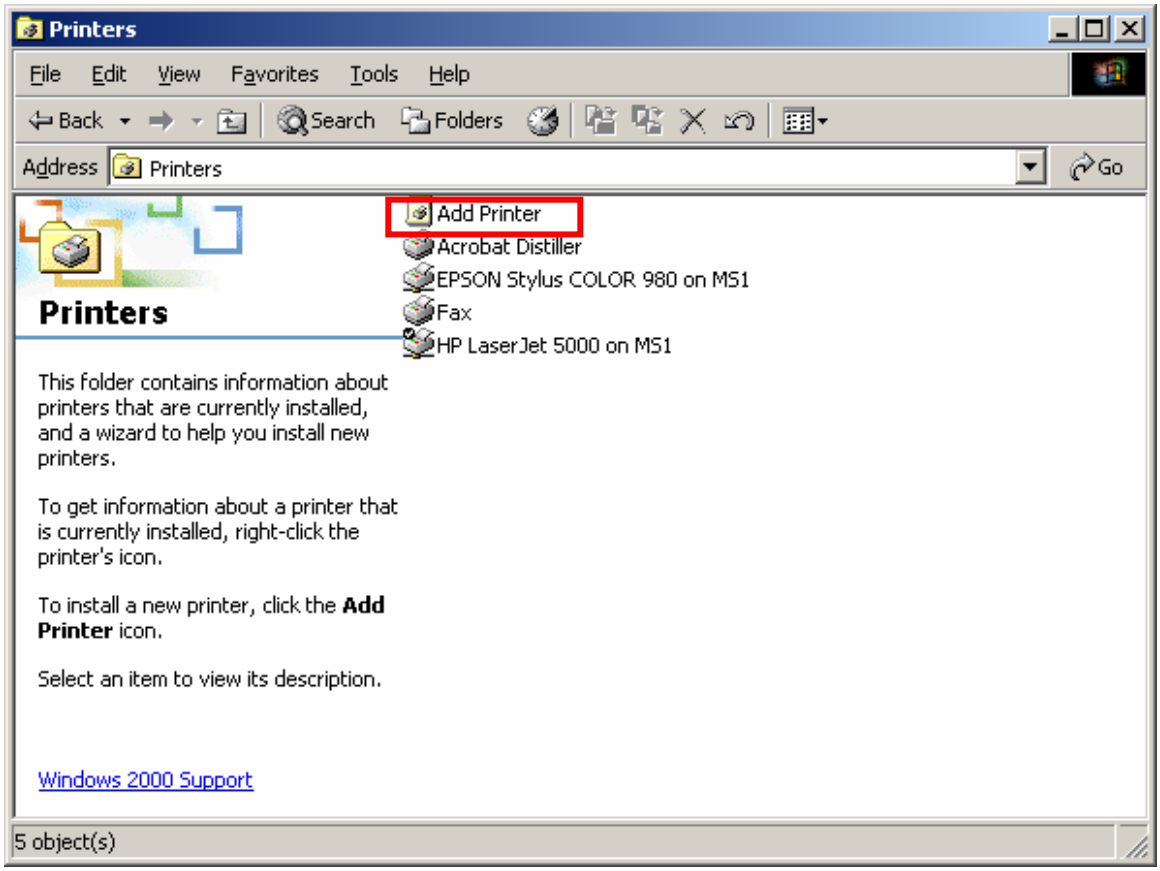
Printer Monitor Status:

Click Printer Monitor Status to launch Printer Monitor Status Table window. In this screen the table lists all printing tasks queue. Each task has the information of Rank, Owner, Job, Files and Total Size.

3.2.9.1. Use LPD network print in window2000/window XP

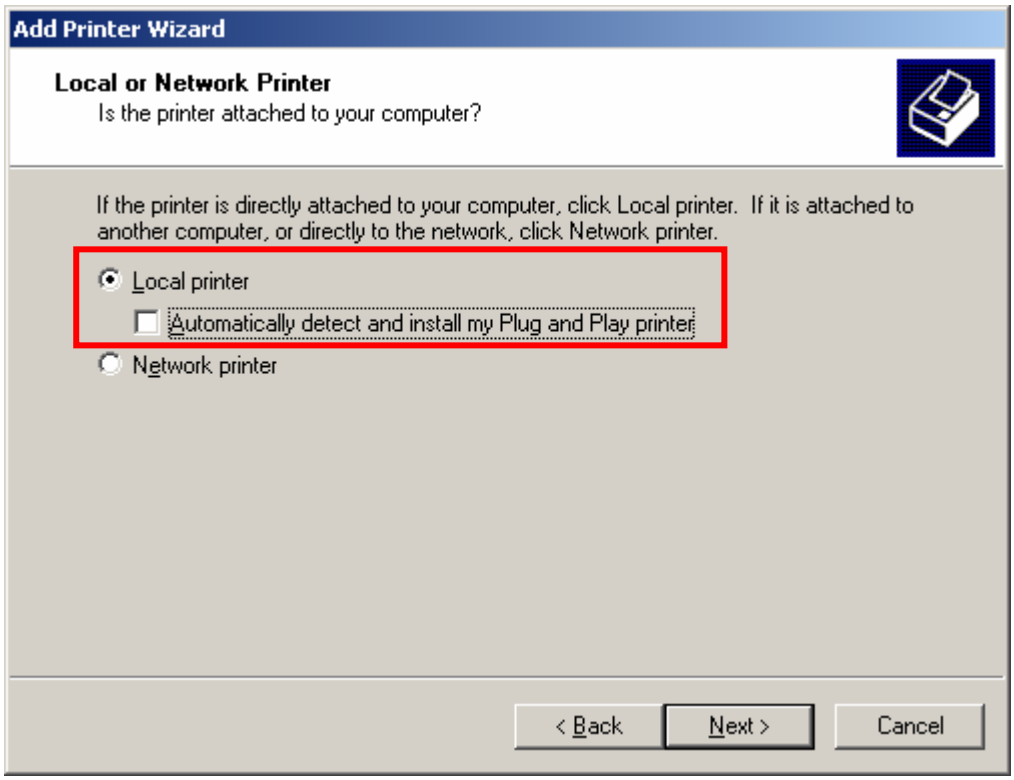
3.2.9.1.1 Host setup:

Add New Printer's driver (from the printer manufacture); If it was a new printer type (no install in local host), please select "Control Panel / Printers / Add Printer" and complete this procedure:



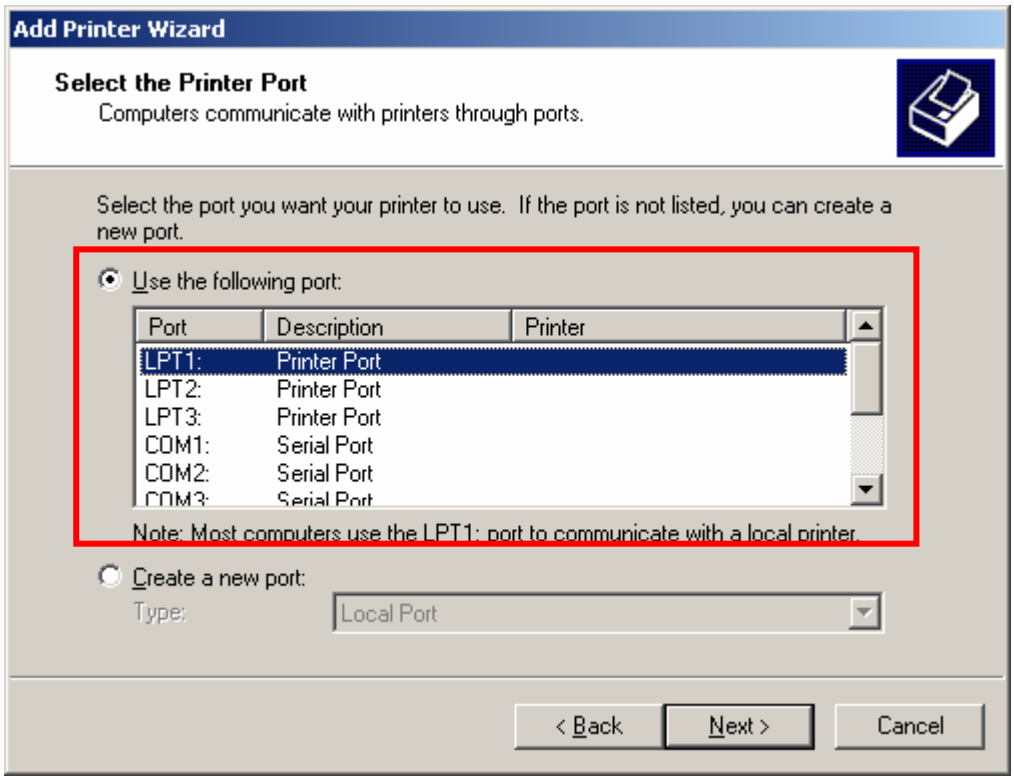
Setup procedure as below:

1.select local printer without detecting local printer;



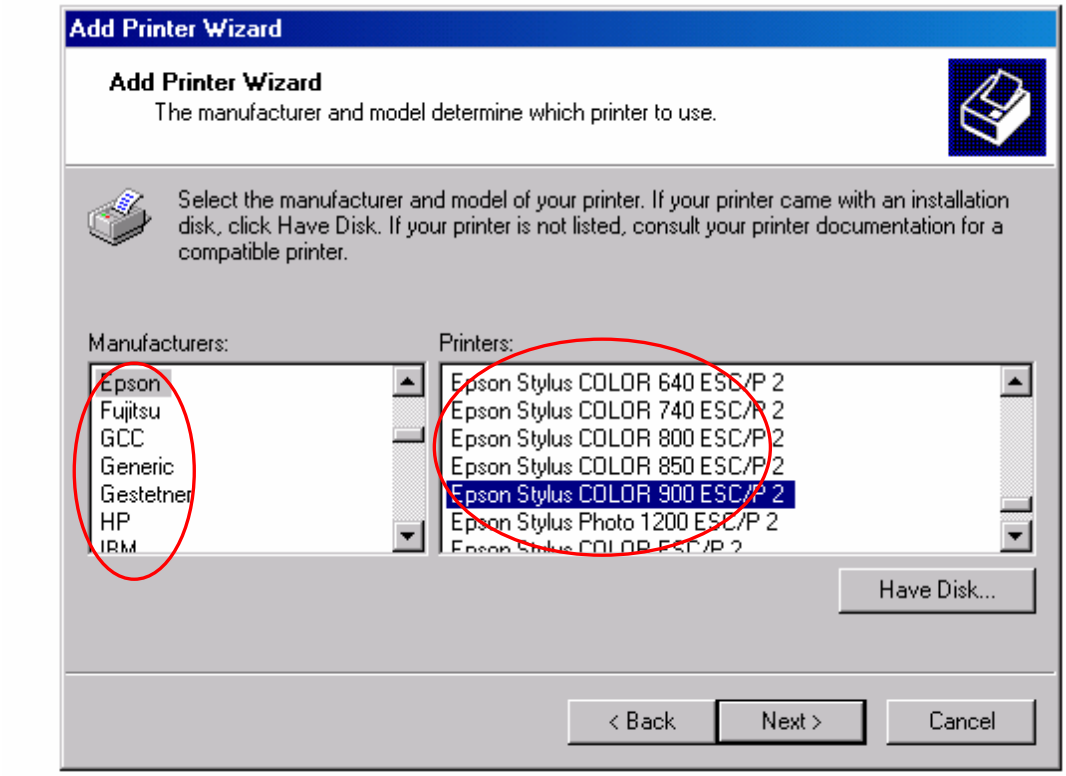
2.the add printer wizard screen will appear, select my computer;

3.in available port, select LPT1;

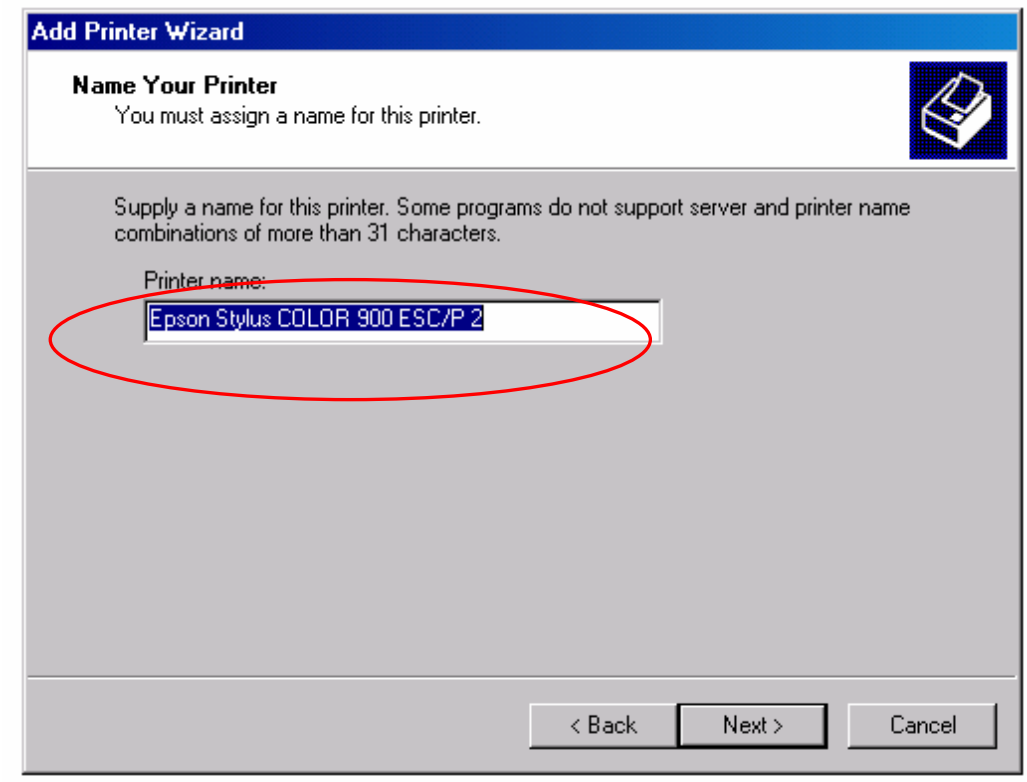


4.Select the appropriate printer manufactory;

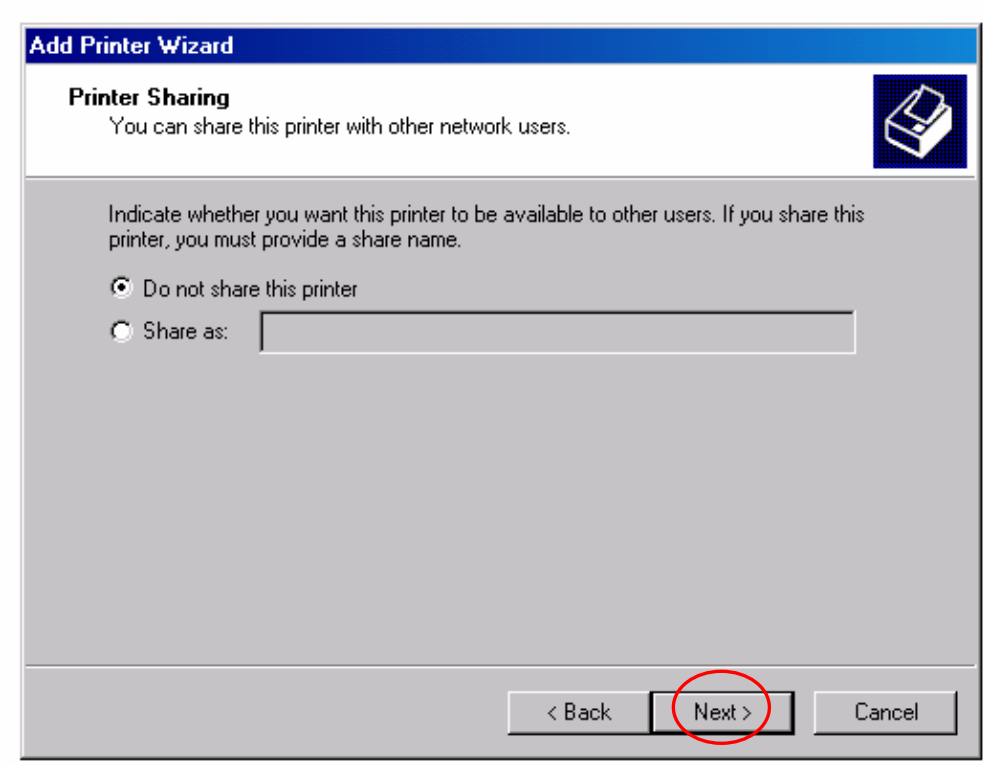
5.Select printer type;



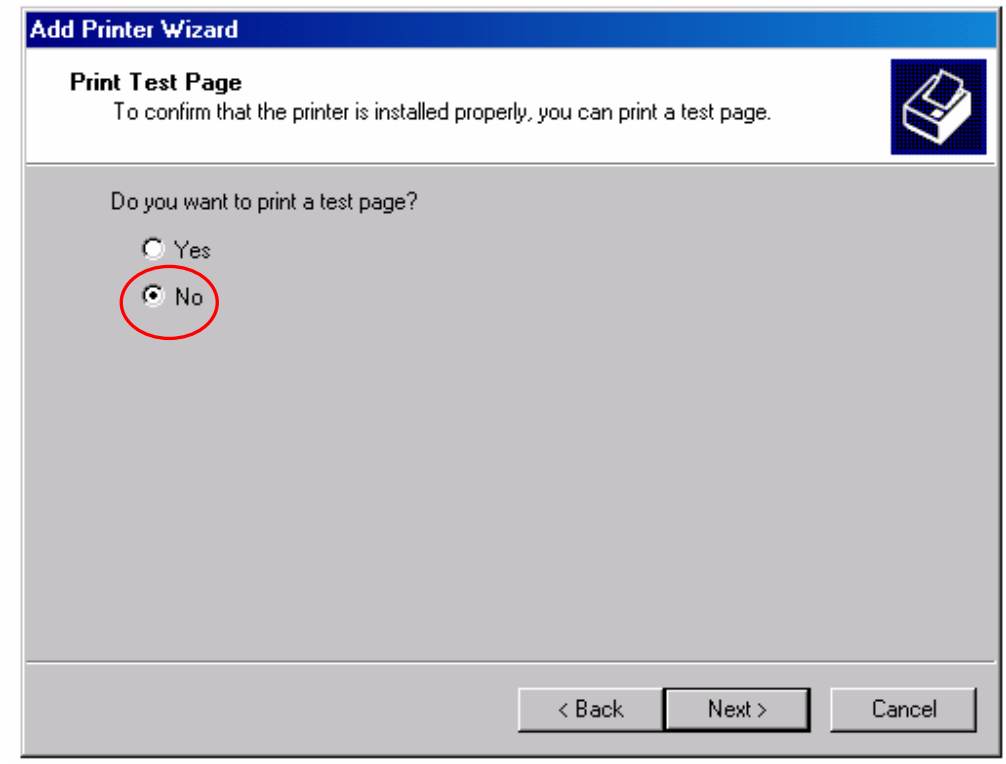
6.Type printer name or use default;



7.In printer sharing, click next;



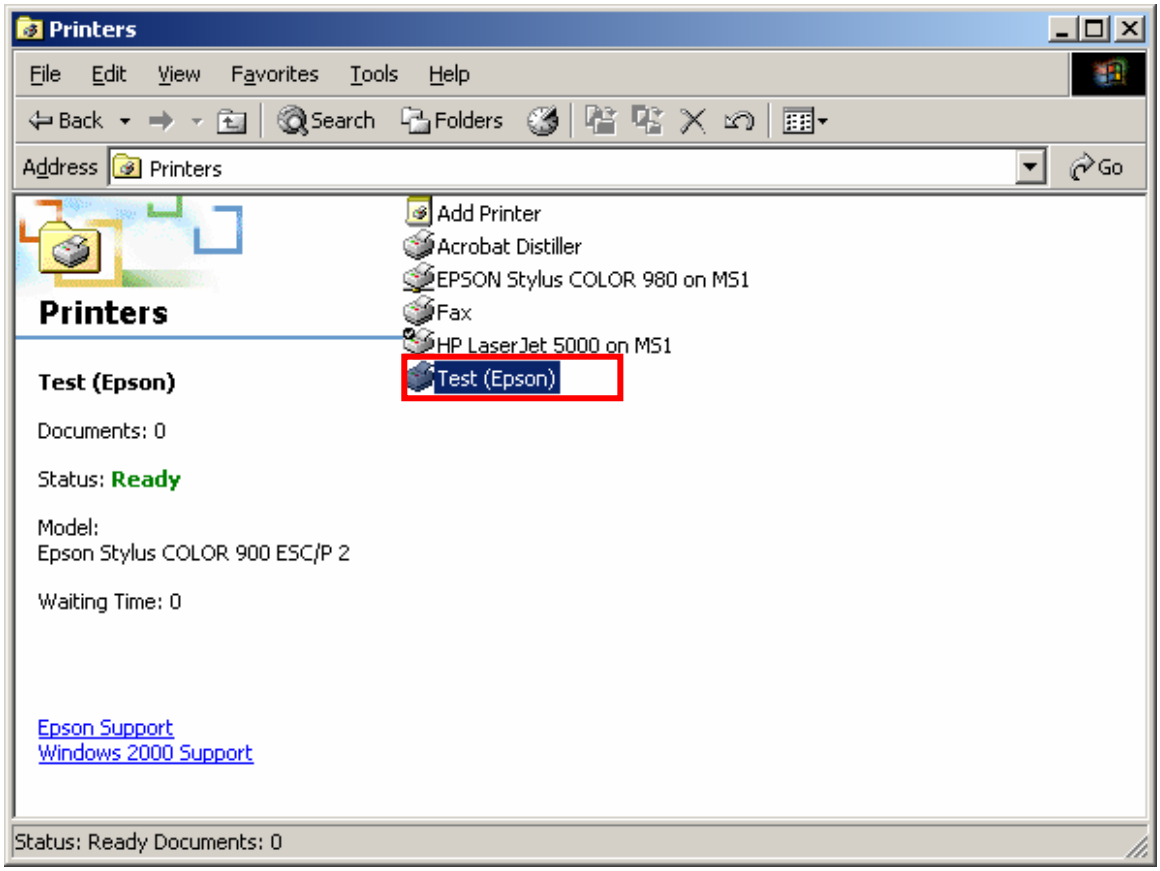
8.In printing testing page, select “no”;



9.Done;

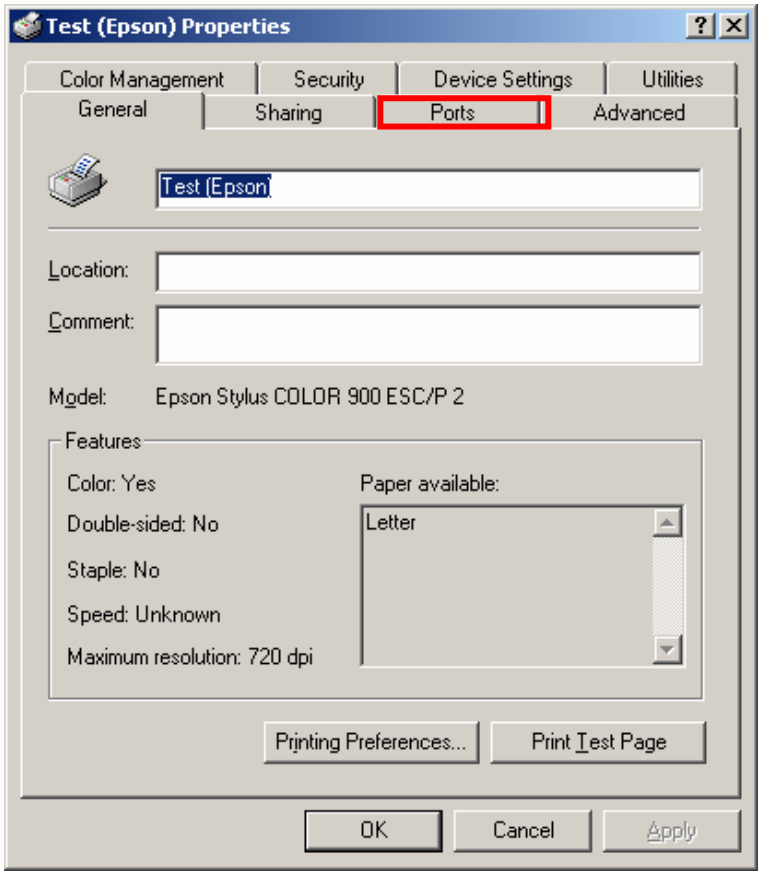
Configure Port properties:

1.Select printer that you want to configure(setting by step 1 at local printer);

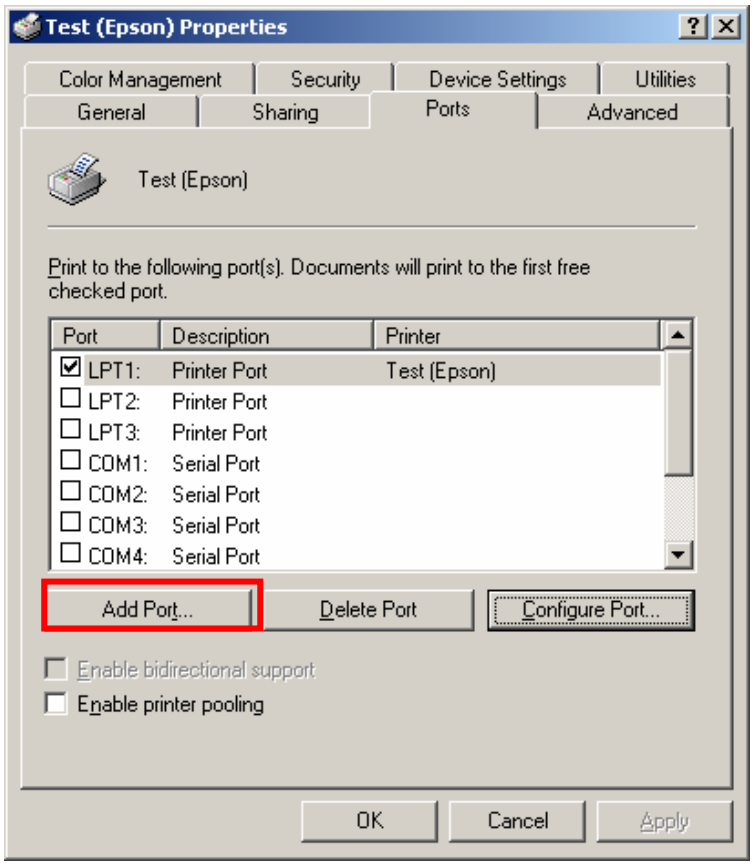


2.Select “properties”;

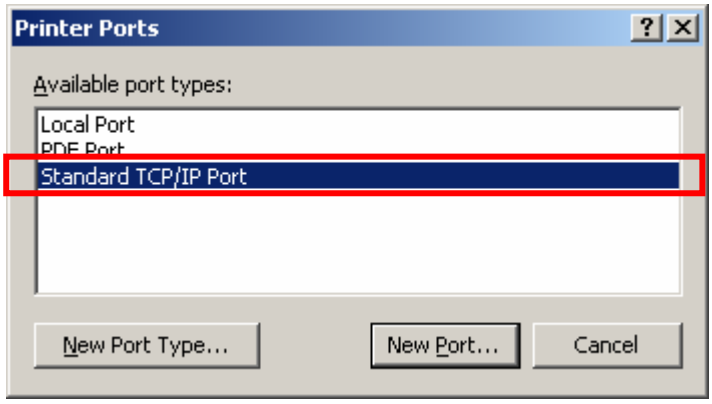
3.Select “port”;



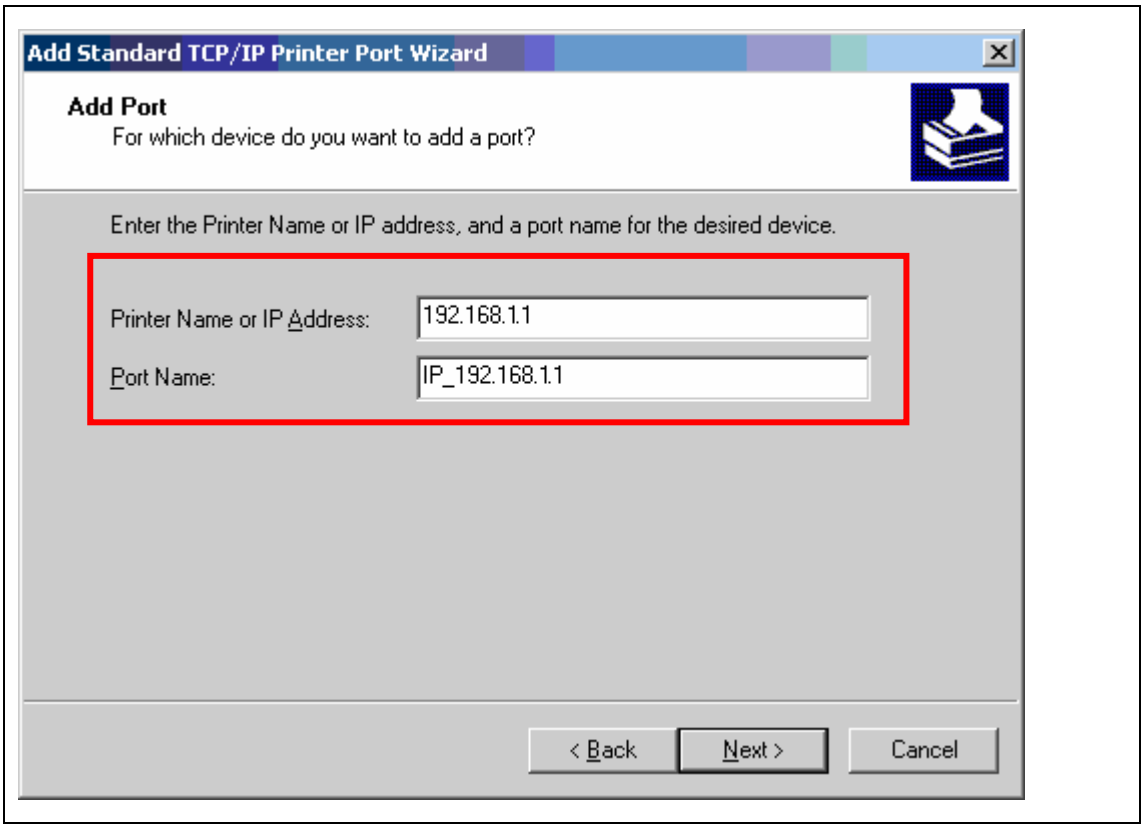
4.Select “add port”;



5.In available ports, select “Standard TCP/IP port”, done;



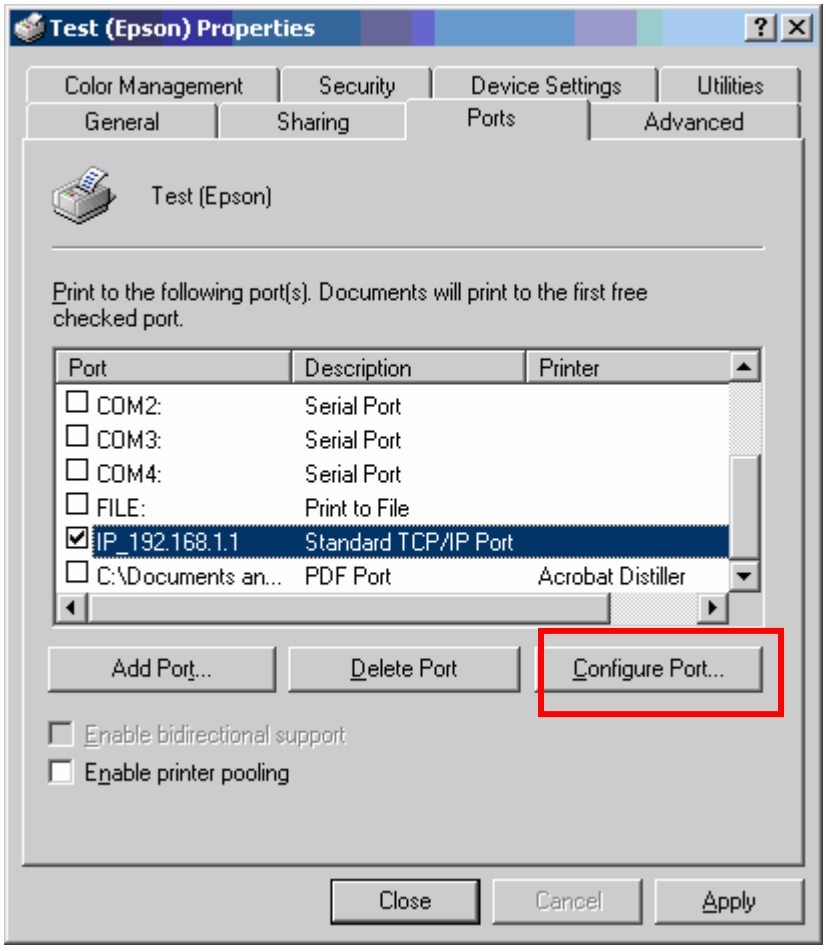
6.Select “add port”;



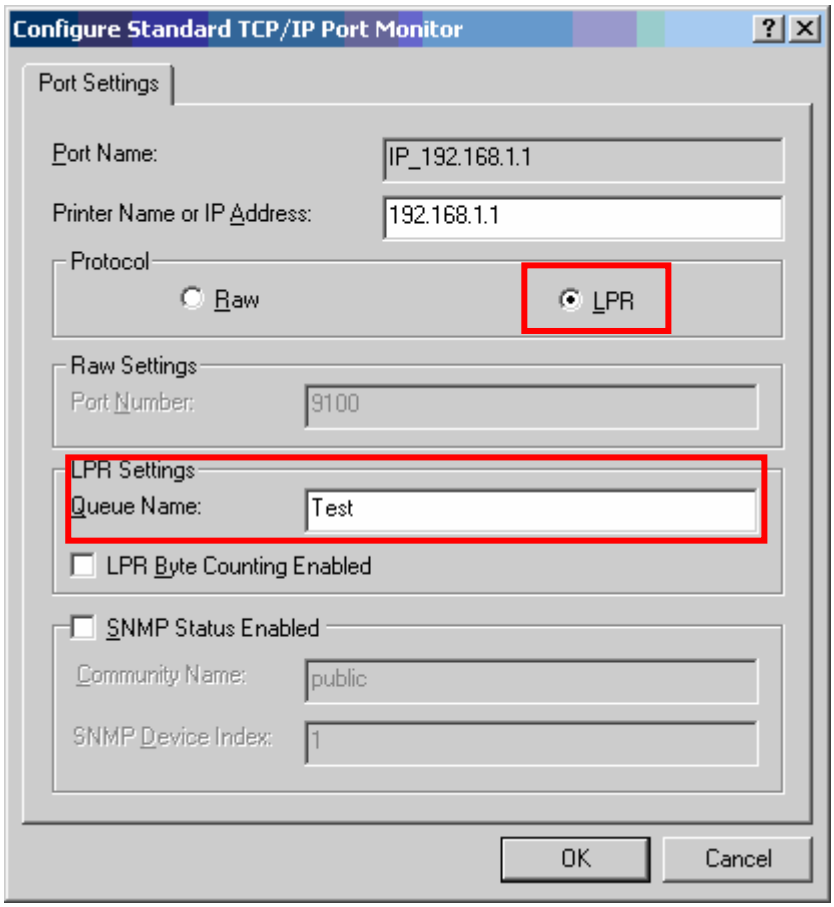
7.Enter network print server “IP Address” and name new port or default;

8.Finish;

9.Select “properties”, and modify port setting;



10.Enter you network print queue name and set port is LPR



11.Done;

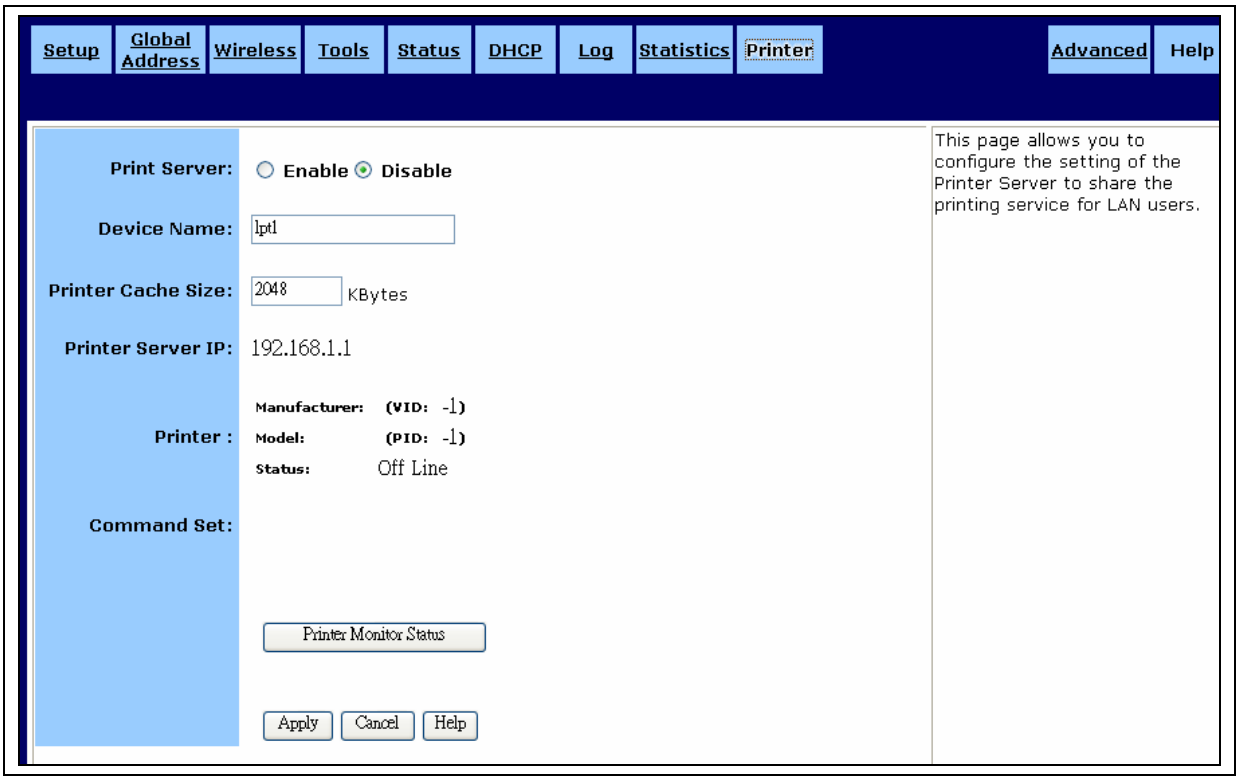
3.2.9.1.3 LPD Server setup

Use Web Page setting LPD server;

1.Enable the Print server

2.Enter the Device Name

The setting of Device Name must be the same as the Queue Name in host; e.g, Test, here



3.Finish.

Monitor queue list:

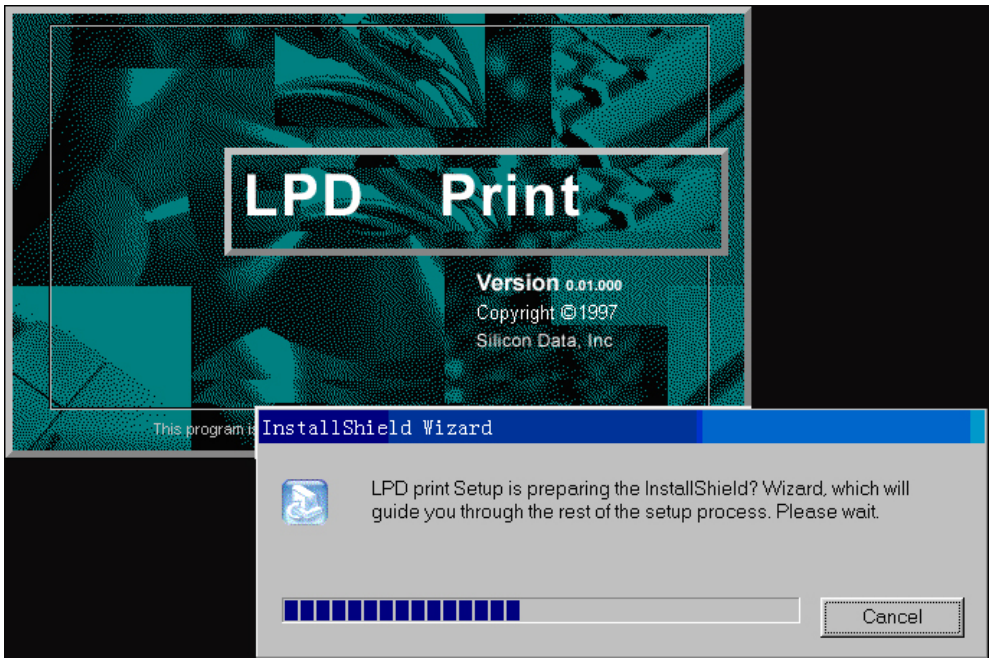
2. Support printer list:

ESPON Stylus C41, HP Deskjet 3820, Canon S520, Epson stylus photo 830, Epson stylus Color 860

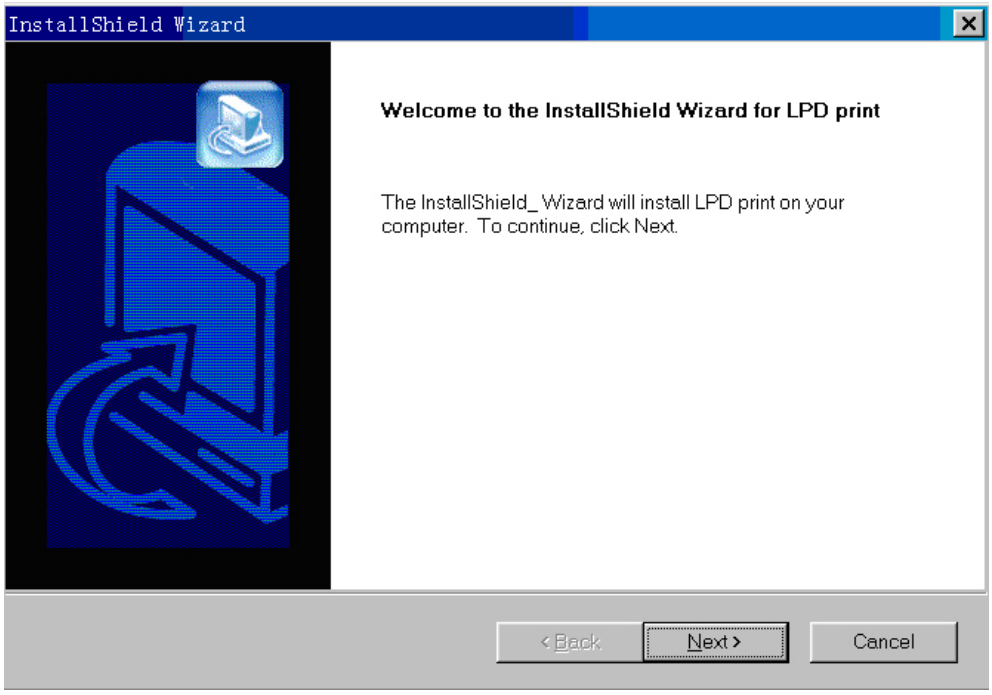
3.2.9.2 Use LPD network print in window98/window ME

3.2.9.2.1Installation

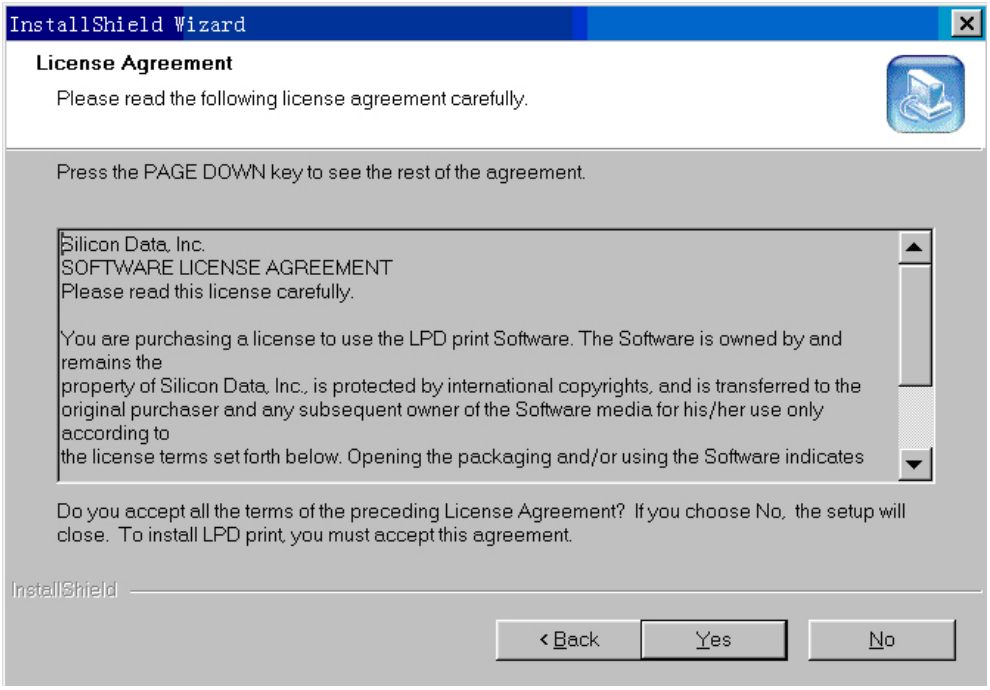
Step 1. Double click the **setup.exe** in the CD.



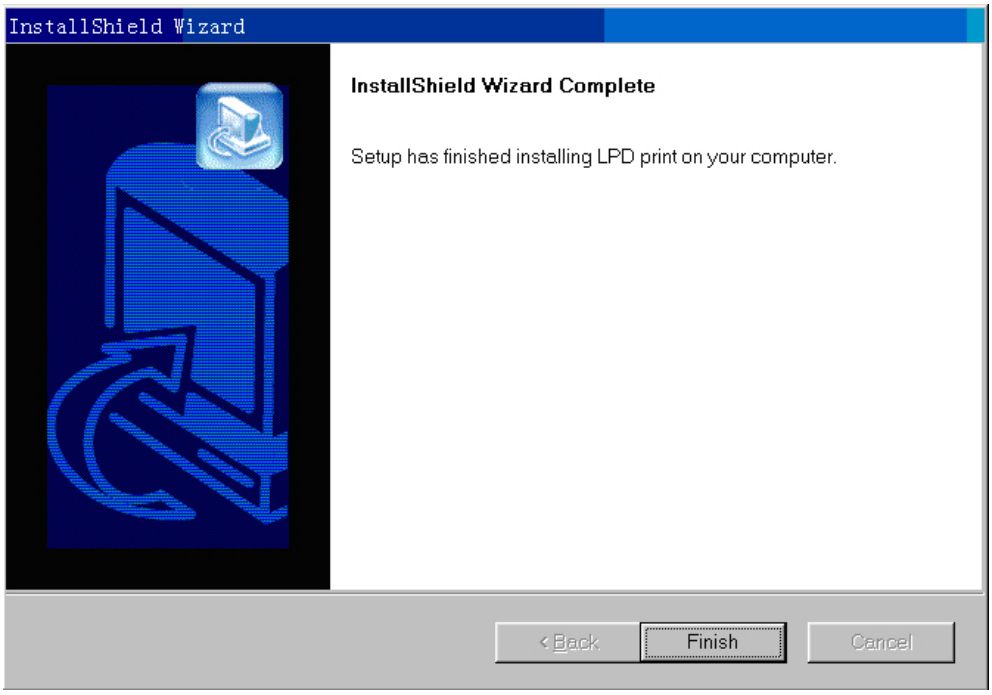
Step 2. In the following step, click the **"Next".**



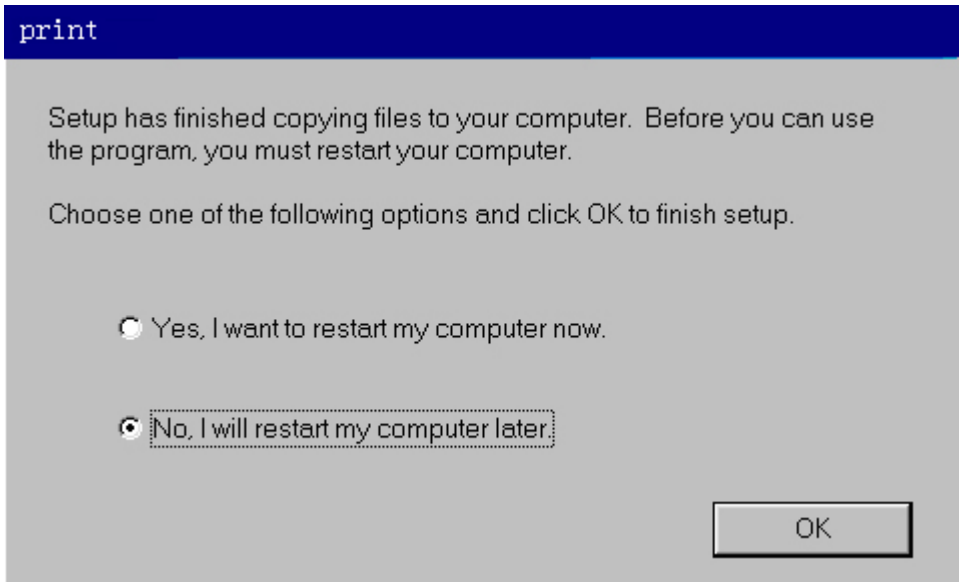
Step 3. If you accept the license agreement, click **"Yes".**



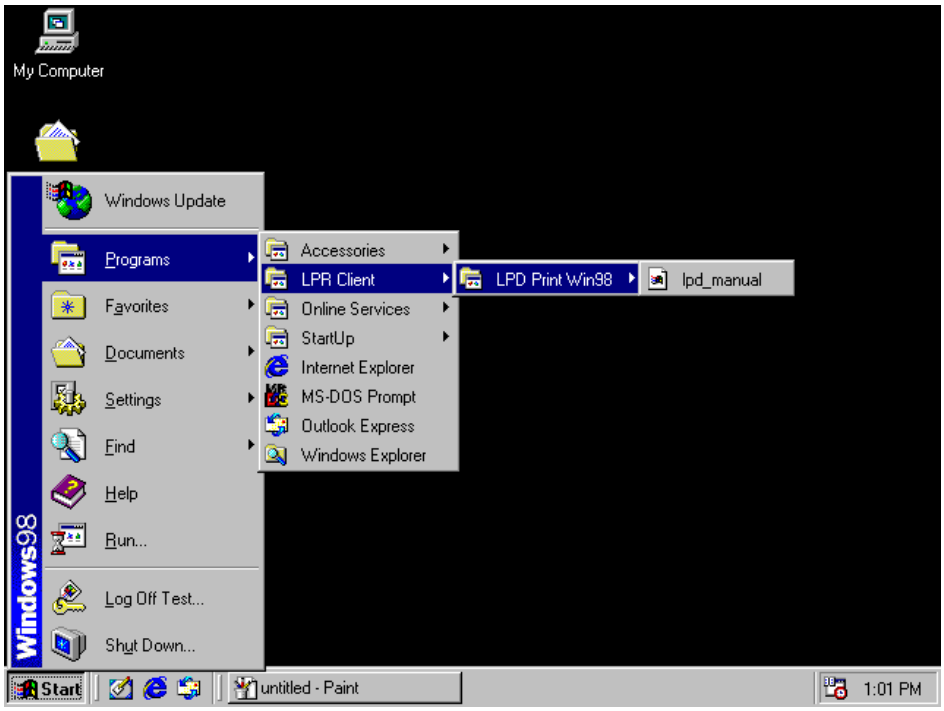
Step 4. Then click **"Next"**, after copying file, the following window will be displayed.



Step 5. Click **"Finish"**, and select **"Yes**", I want to restart my computer now" to complete the installation.



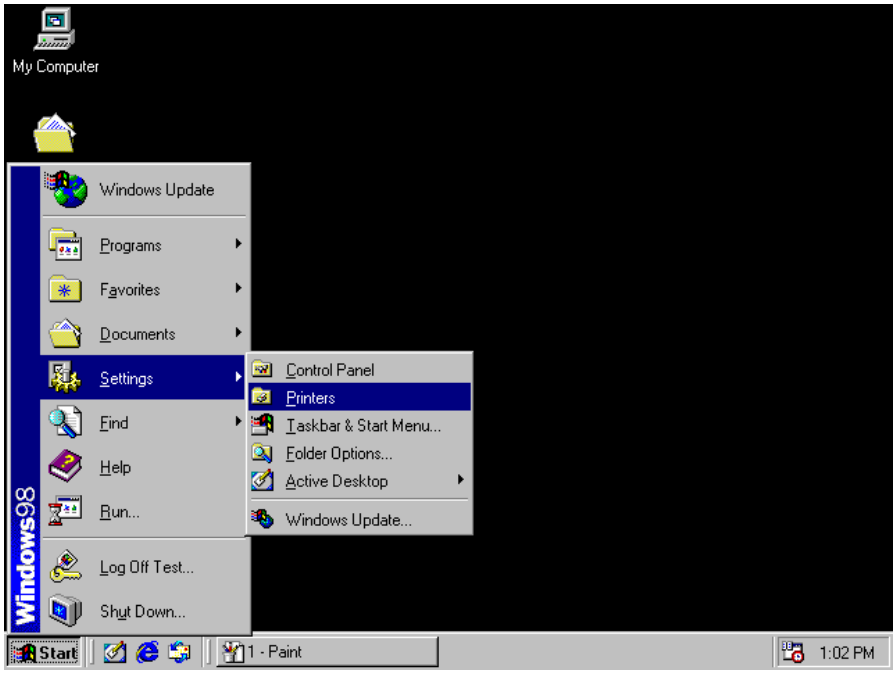
Step 6. Once you reboot system, the installation will be completed. And a detailed LPD print setup manual can be found in \Program Files\LPR Clent\LPD Port Win98.


My Computer
Windows Update
Programs
Favorites
Documents
Settings
Find
Help
Run...
Log Off Test...
Shut Down...
Windows98
Accessories
LPR Client
Online Services
StartUp
Internet Explorer
MS-DOS Prompt
Outlook Express
Windows Explorer
LPD Print Win98
lpd_manual
Start
untitled - Paint
1:01 PM

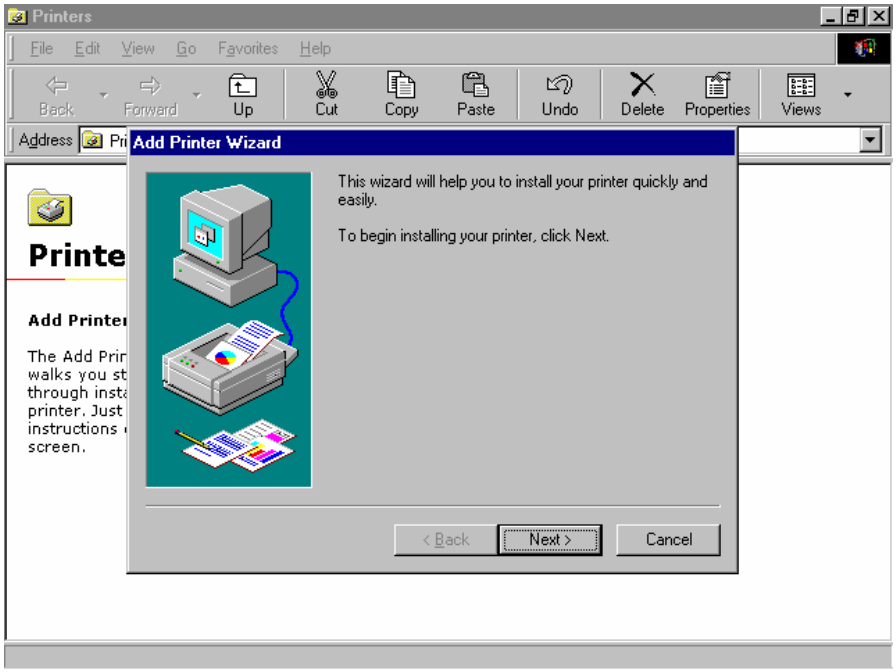
3.2.9.2.2 Configuration

Installing the driver of your printer connected to the Printer Server gateway.

Step 1. Go to **"Printers"** by clicking the Start button, selecting Settings, and clicking Printers.

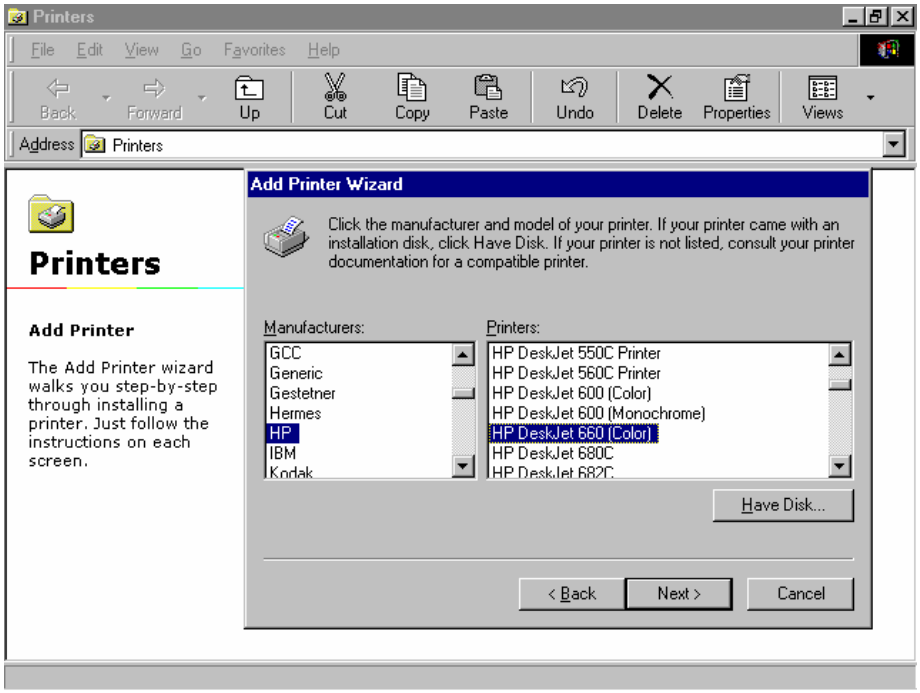


Step 2: Click the **"Add printer"** and click **"Next"** in the **"Adding printer wizard" Window".**



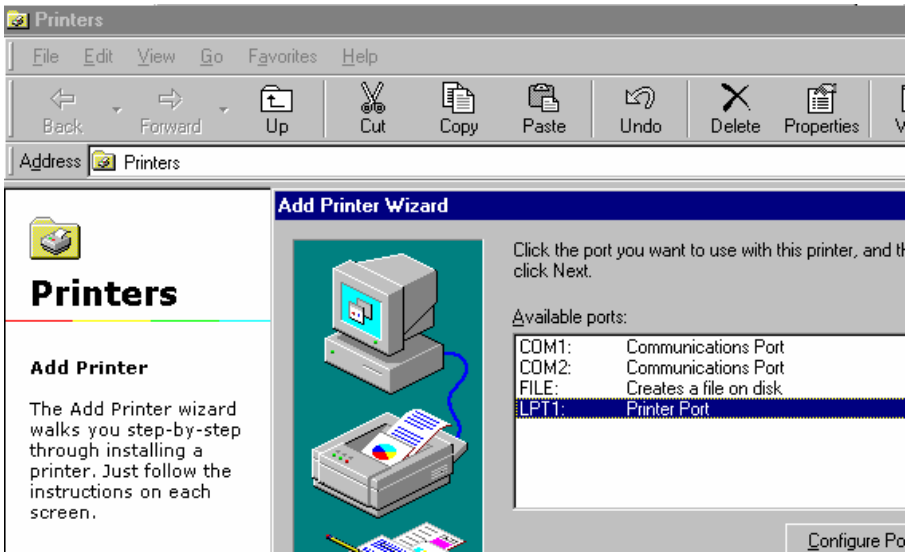
Step 3: Select the **"Local printer"** and click the **"next".**

Step 4: Select the Manufacturer and insert corresponding printer driver disk and click **"Install from disk…**



Step 5: install printer the driver file

Step 6: Select the compatible printer, and click **"Next".**

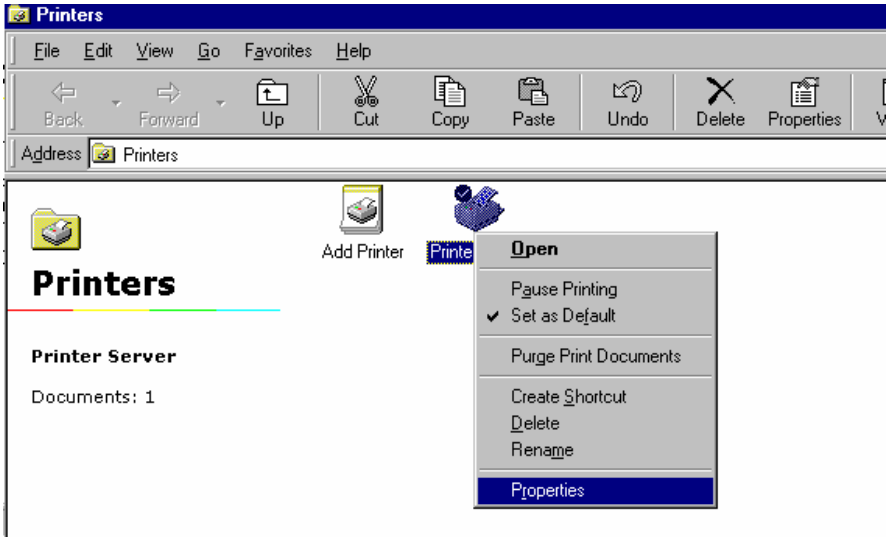


Step 8: Click **"Finish"**

Step 9: Click **"OK"** to complete the installation.

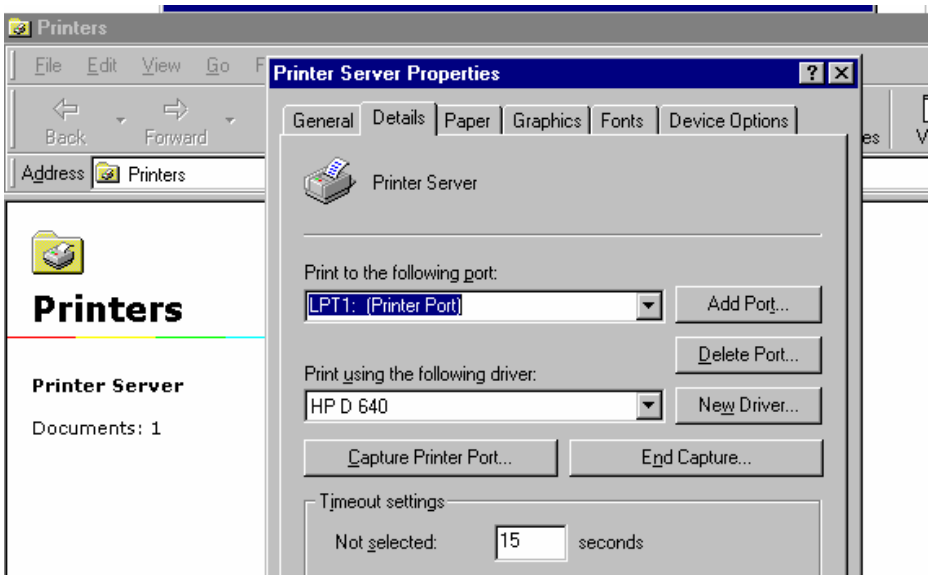
3.2.9.2.3 Printer Server Port configuration

Step 1: Right click on the printer you just added, and click the **"Properties".**

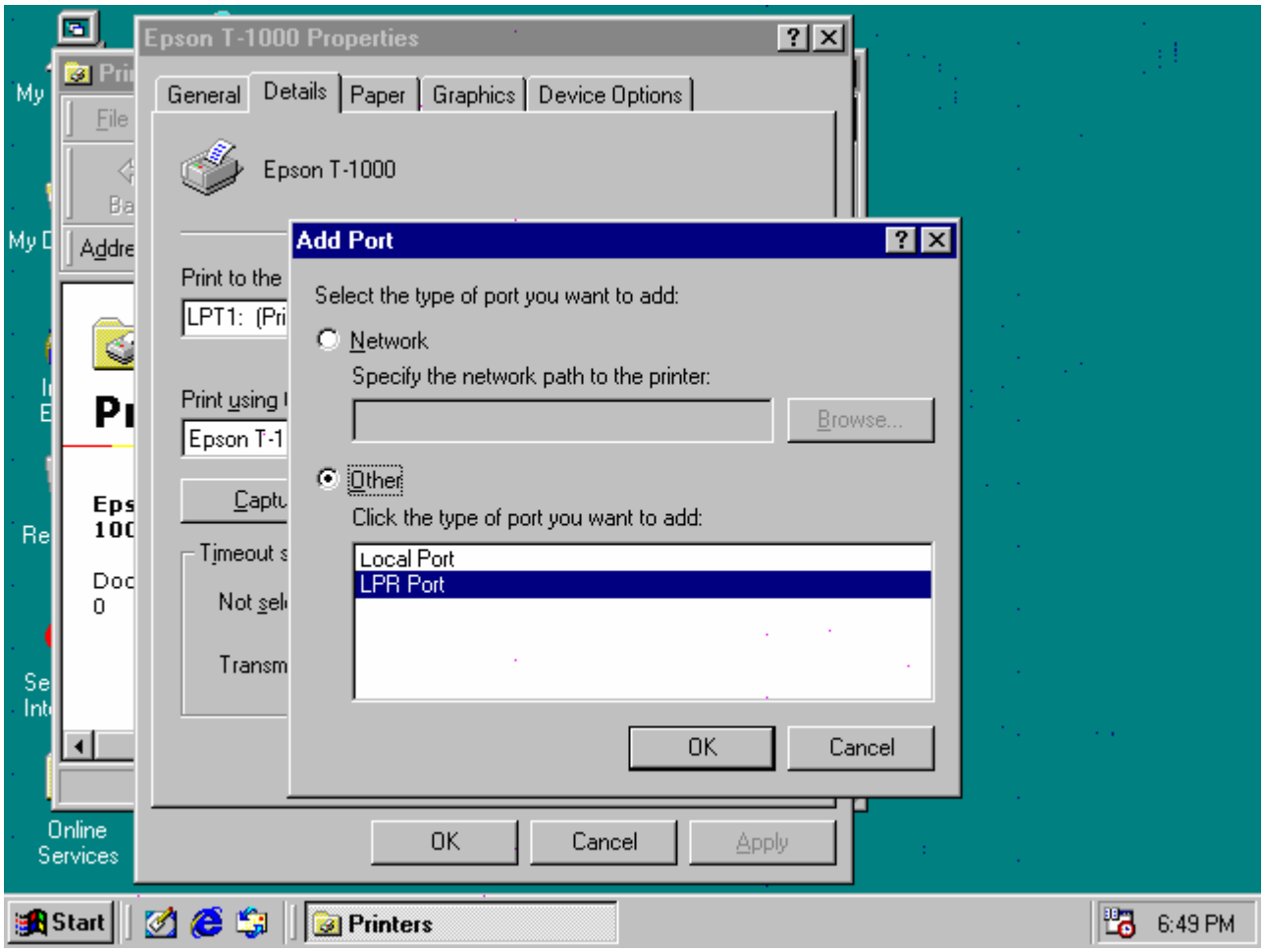


Step 2: Select the **"Detail…"** tab on the window pop up.

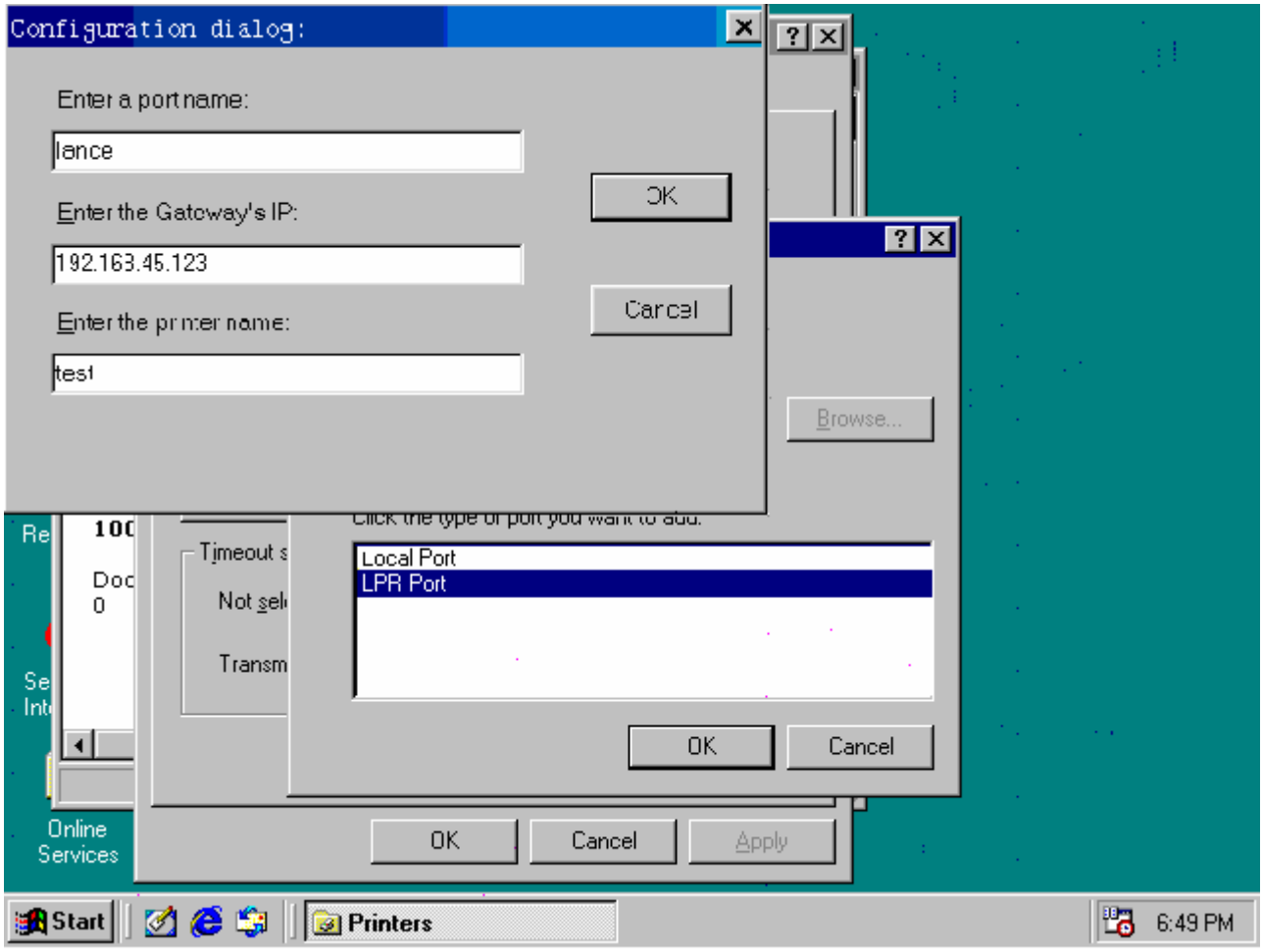
Step 3: Click the **"Add port…"**



Step 4: Select the **"Others…"** option from the **"Adding port"** window, choose the **"LPR port"** item in list, then click **"OK"**.



Step 5: You can choose a favorite name for this port, but the IP address of the printer server (gateway) and the printer name must match the configuration on your gateway.



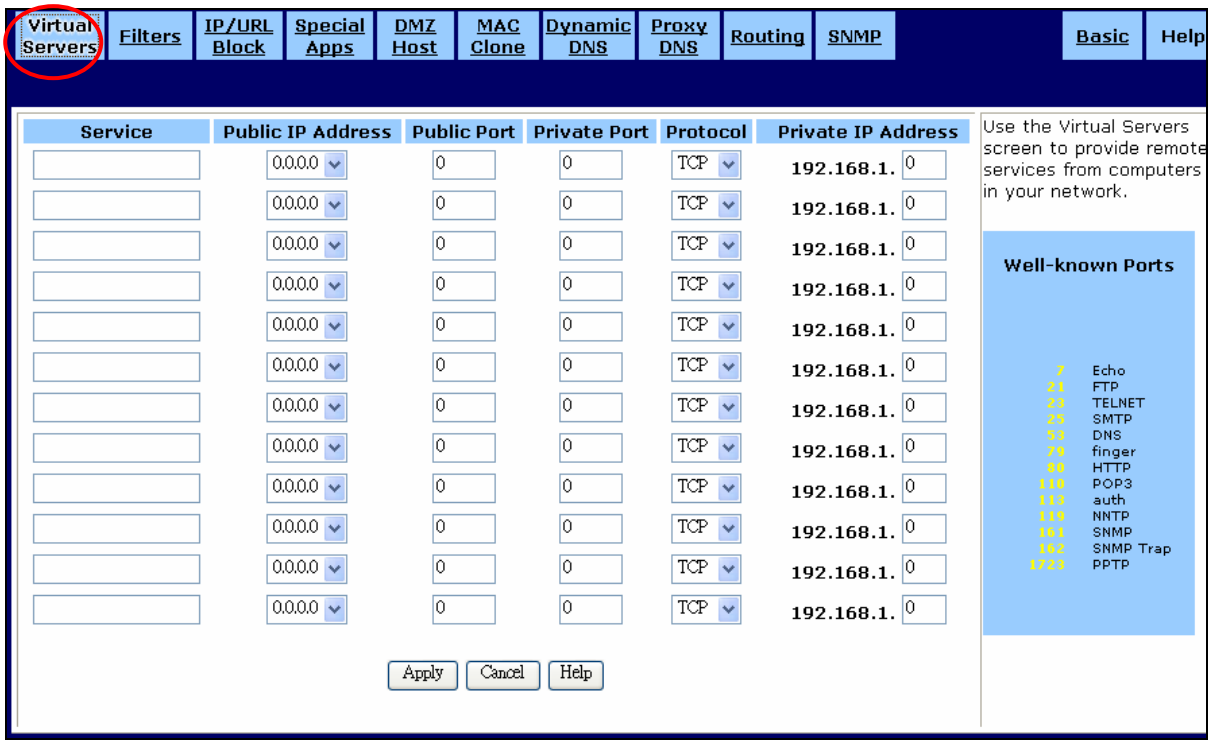
Step 6: Then the port you added is shown in the port list. Please click **"Apply"** and then click **"OK"**.

Step 7: After you clicked the **"OK"**, the installation is completed.

3.3 Advanced Setup

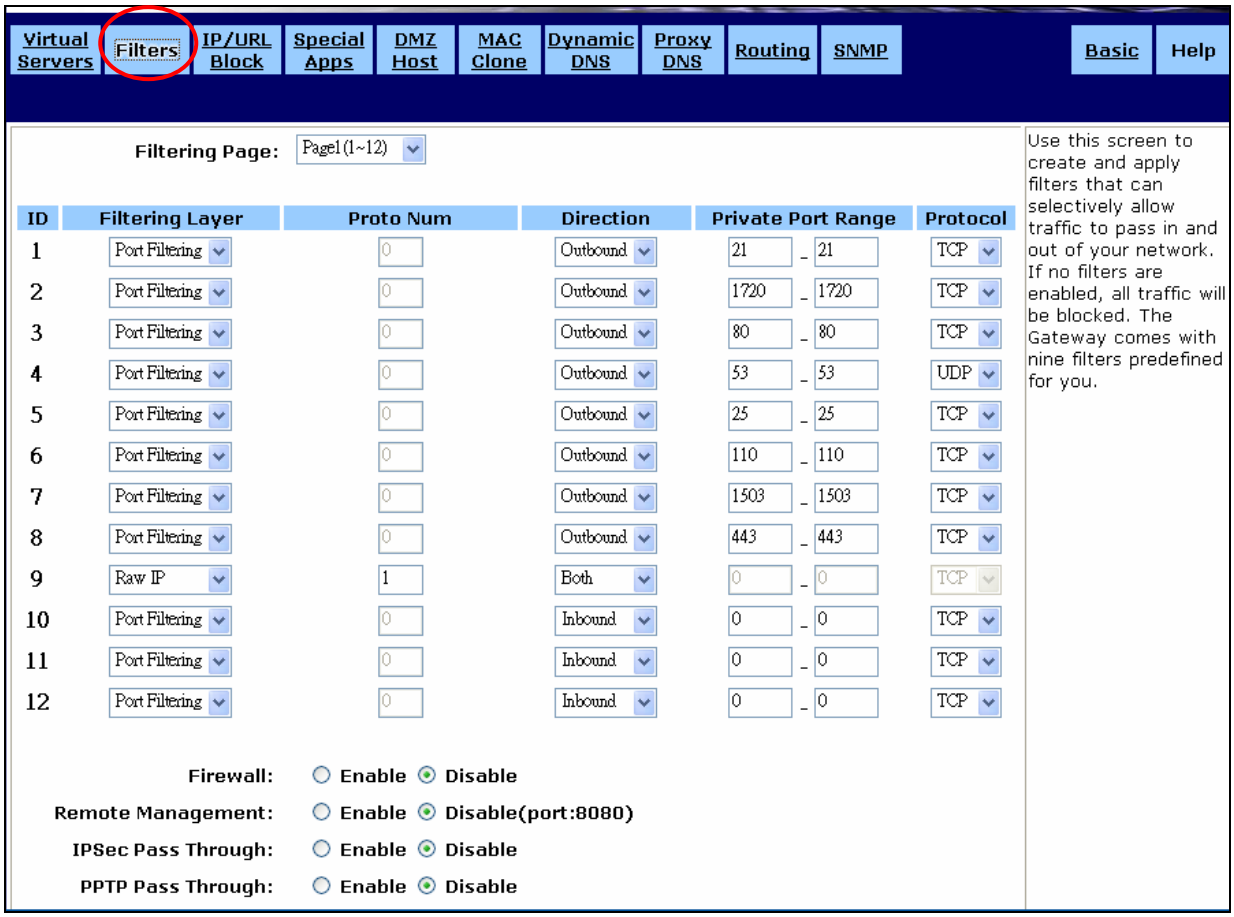
3.3.1 Virtual Servers

This provides remote services from computers in your network by virtual servers.



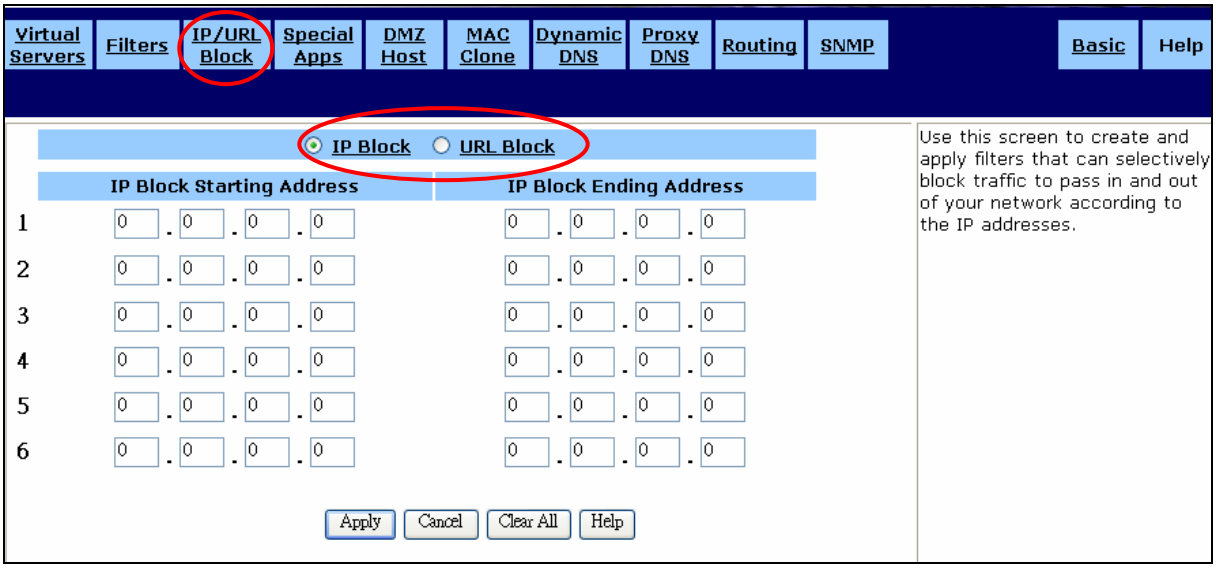
3.3.2 Filters

Use this screen to create and apply filters that can selectively allow traffic to pass in and out of your network. If no filters are enabled, all traffic will be blocked.



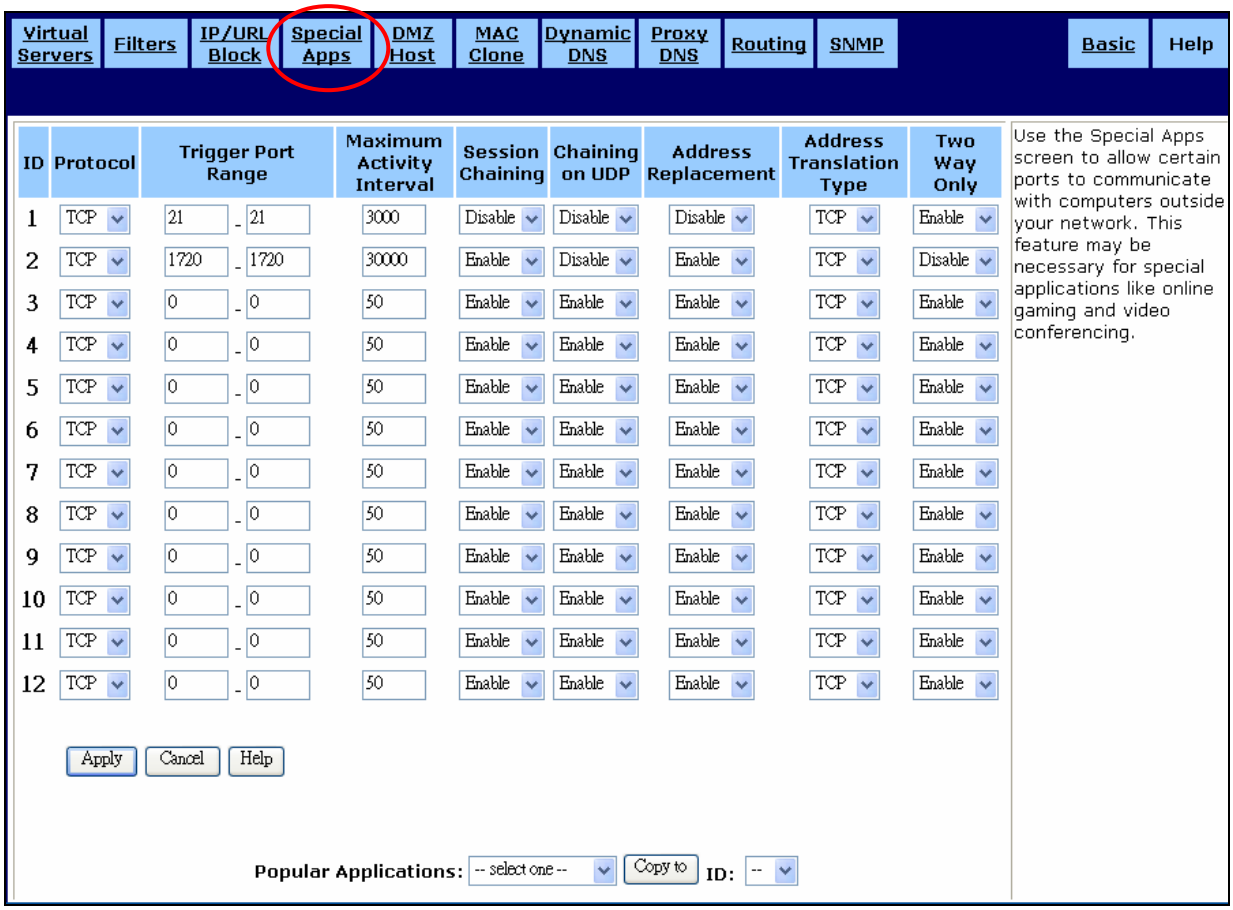
3.3.3 IP/URL Block

Use the IP/URL Block screen to create and apply filters to selectively block traffic from specific IP addresses or specific domain name from passing in and out of your network.



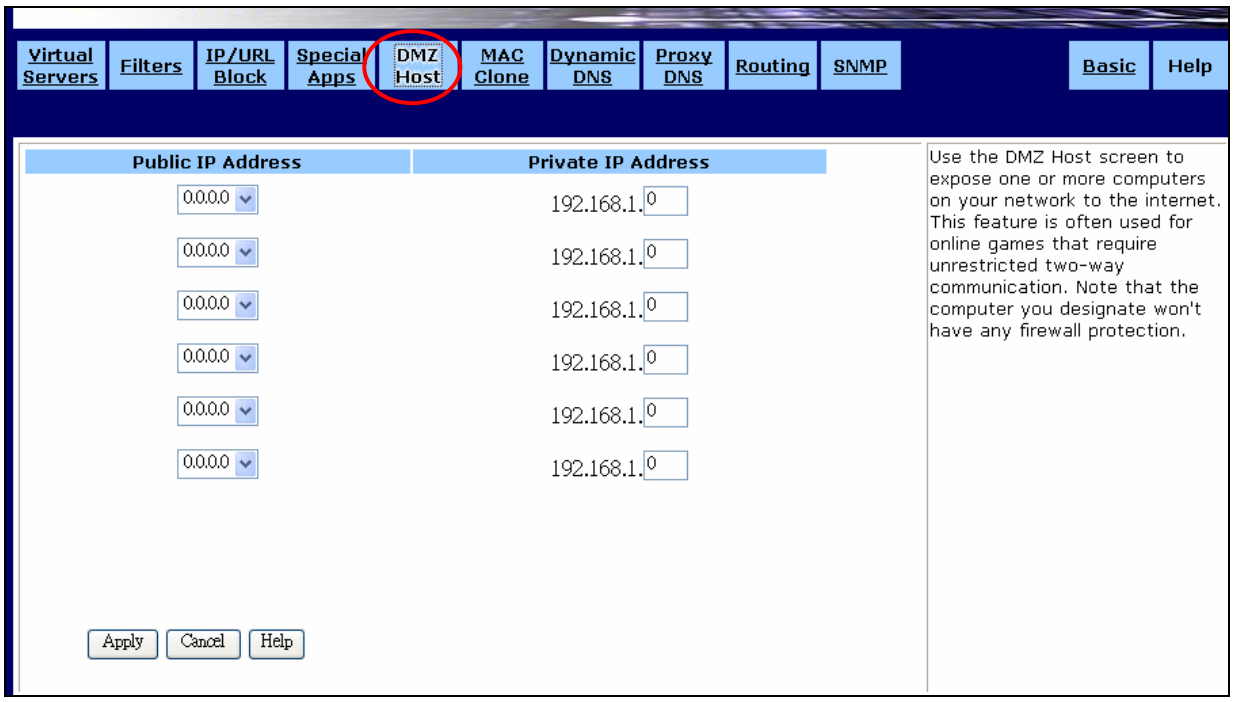
3.3.4 Special Apps(Special Applications)

Use the Special Apps screen to allow certain ports to communicate with computers outside your network. This feature may be necessary for multi-session applications like online gaming and video conferencing.



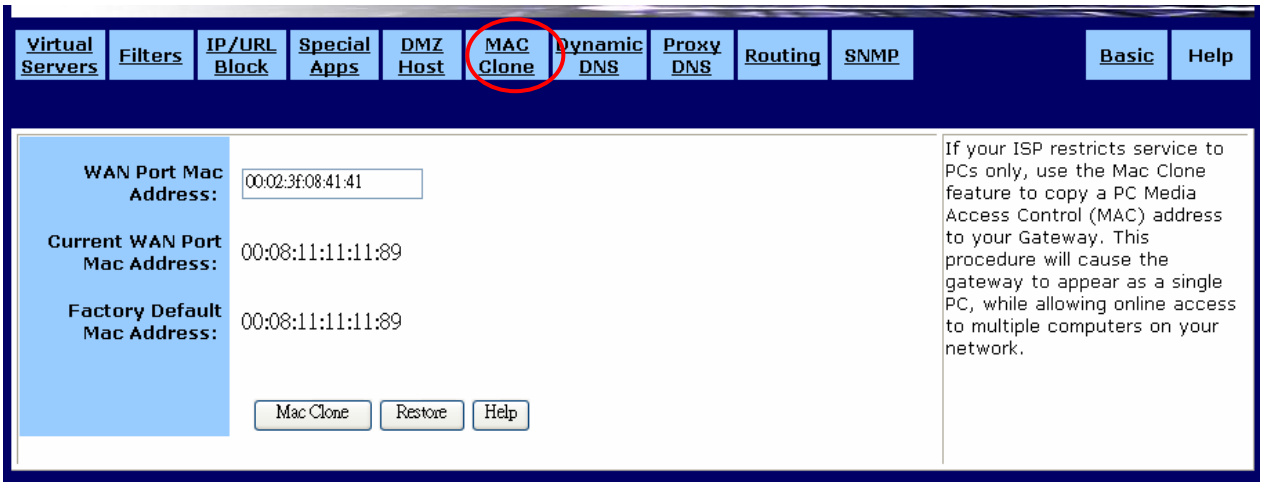
3.3.5 DMZ Host

Use the DMZ Host screen to expose one or more computers on your network to the internet. This feature is often used for online games that require unrestricted two-way communication. Note that the computer you designate won't have any firewall protection.



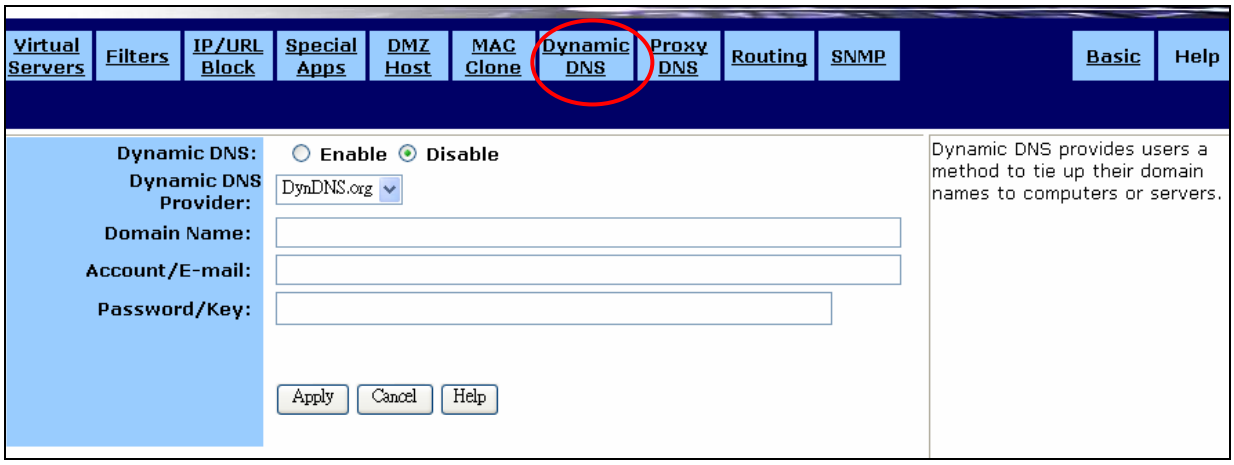
3.3.6 MAC Clone

If your ISP restricts service to PCs only, use the Mac Clone feature to copy a PC Media Access Control (MAC) address to your Gateway. This procedure will cause the gateway to appear as a single PC, while allowing online access to multiple computers on your network.



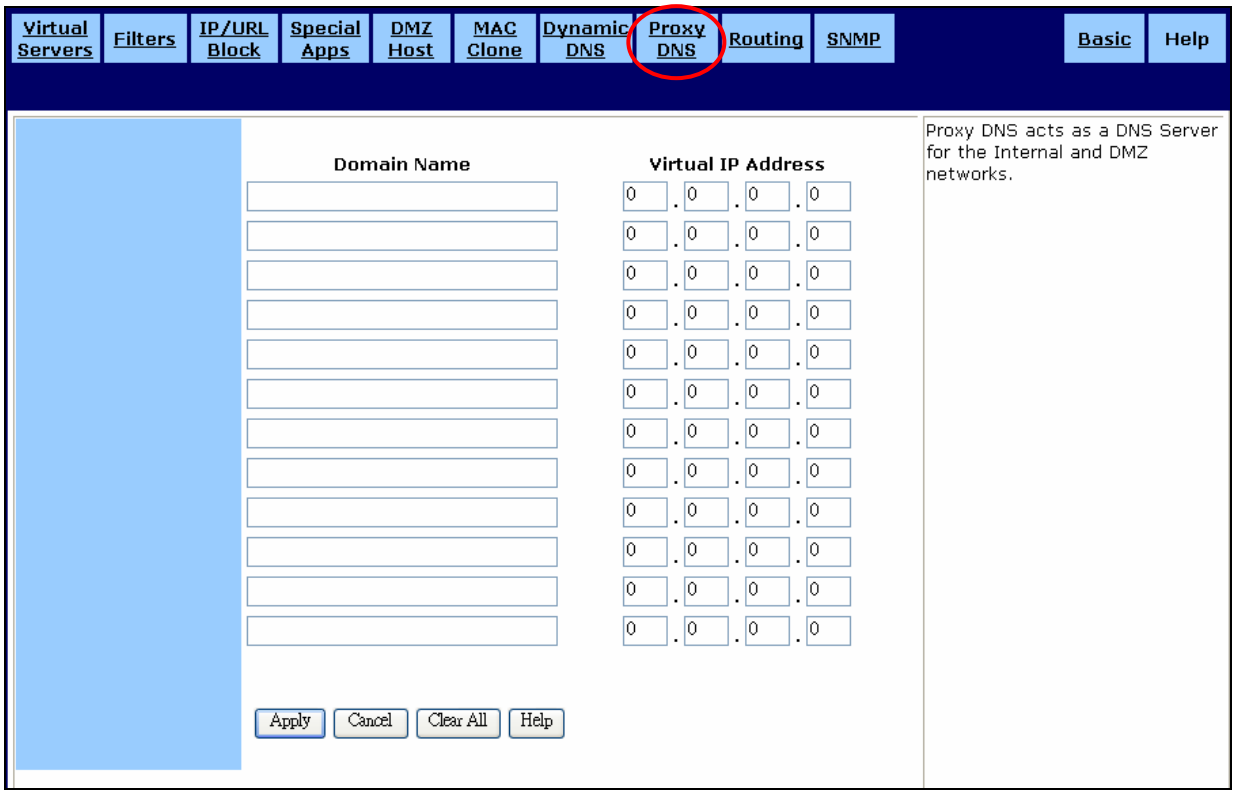
3.3.7 Dynamic DNS

Use the Dynamic DNS screen to configure the router to retrieve an IP address from a dynamic DNS provider. These providers allow you to associate a static hostname with a dynamic IP address. This allows you to connect to the Internet with a dynamic IP address and use applications that require a static IP address.



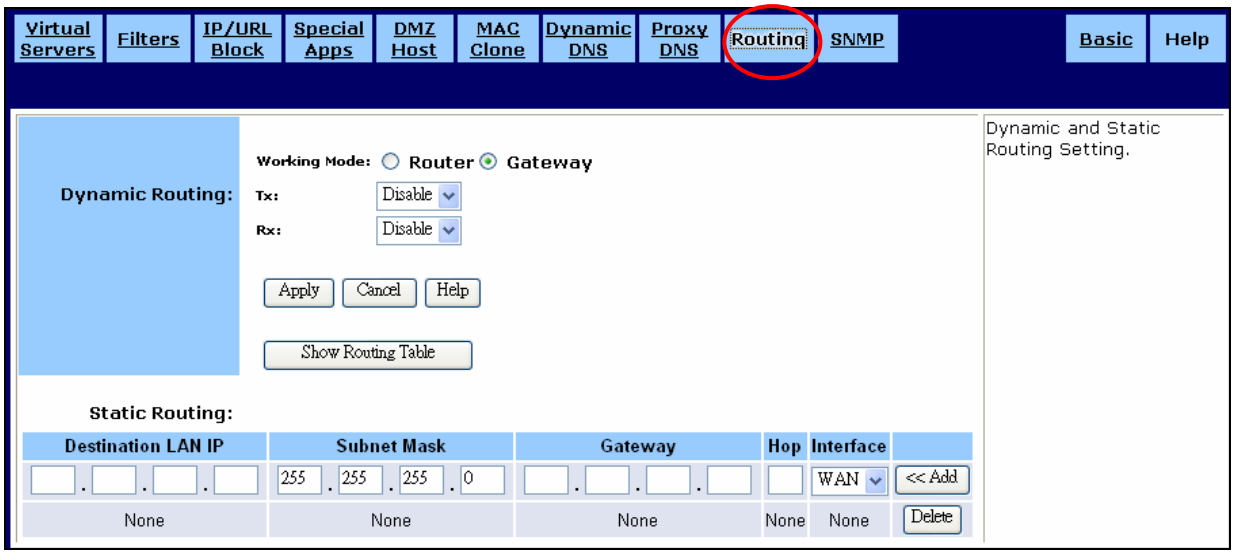
3.3.8 Proxy DNS

Use the Proxy DNS screen to map a domain name to its server IP address. This feature acts as a DNS server for the internal and DMZ networks, allowing you to connect to local machines without using an external DNS server. This simplifies network configuration and management.



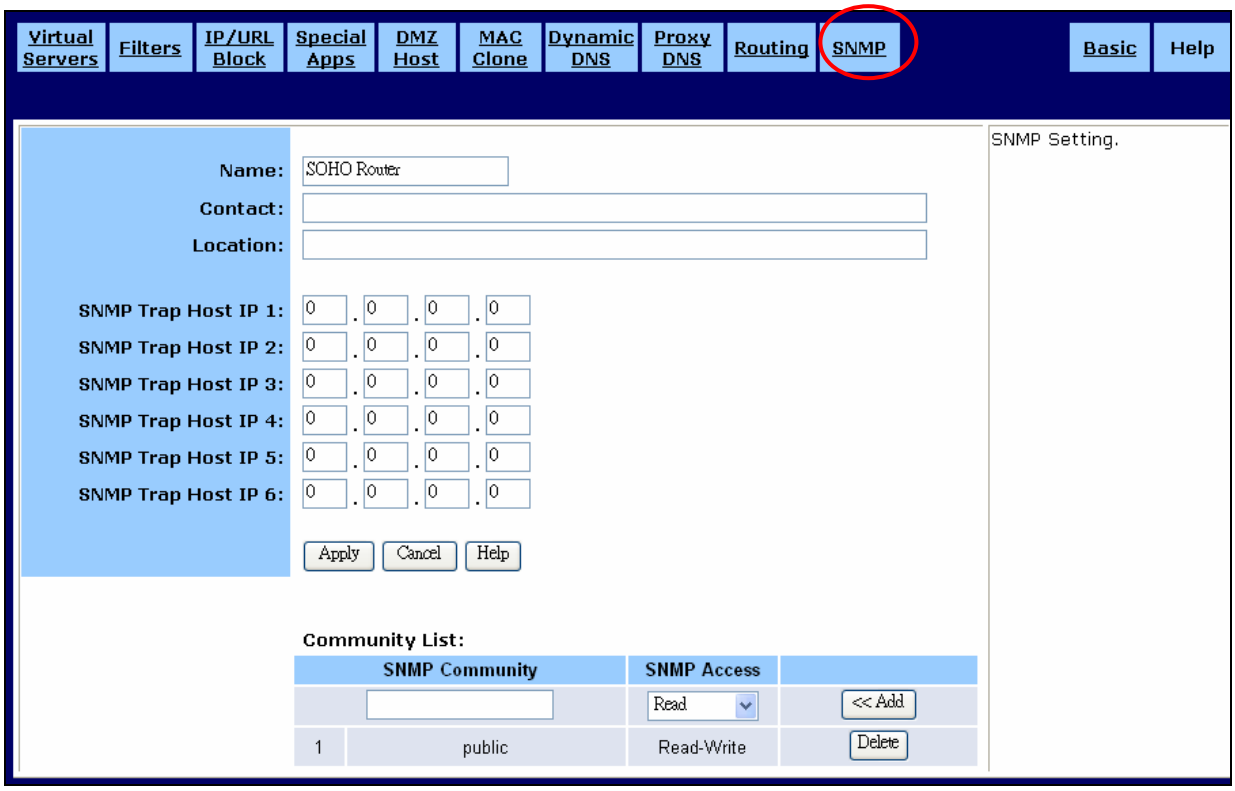
3.3.9 Routing

Use the Routing screen to configure the routing features. It includes static routing and dynamic routing.



3.3.10 SNMP

Use the SNMP screen to edit the Agent information, configure the trap receiver's IP address and Community Names for the SNMP feature. Using SNMP, you can control and monitor the network in a simple way.



4. Glossary

Ad-Hoc Mode

An Ad-hoc integrated wireless LAN is a group of computers, each has a Wireless LAN adapter, Connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

BSS ID

A specific Ad hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

DHCP (Dynamic Host Configuration Protocol)

DHCP is a protocol for dynamically assigning IP addresses to networked computers. With DHCP, a computer can automatically be given a unique IP address each time it connects to a network—making IP address management an easier task for network administrators. When a computer logs on to the network, the DHCP server selects an IP address from a master list and assigns it to the system.

DMZ Host (De-Militarized Zone Host)

DMZ is the portion of a private network that is visible through the network's firewalls. DMZ Host allows a local computer exposed to the Internet. Therefore, an incoming packet will be checked by Firewall and NAT algorithms in the router then pass to the DMZ host when packet is not sent by hacker and is not limited by Virtual Server list. Besides, there are some IP protocols that do not have port number information. There is no way to use Virtual Server setting to forward incoming packet. Thus, DMZ host is the way to forward such kind of packets. If you try to enable DMZ host and setup Virtual Server, the precedence is Virtual Server and then DMZ. For example, the incoming packet will be checked with Firewall rules, Virtual Server rules and
then DMZ host.

DSSS (Direct-Sequencing Spread-Spectrum)

DSSS operate over the radio airwaves in the unlicensed ISM band (industrial, scientific, medical). DSSS uses a radio transmitter to spread data packets over a fixed range of frequency band.

Encryption

It's a security method that applies a specific algorithm to data in order to alter the data appearance and prevent other devices from reading the information.

Firewall

A firewall is a device that sits between your computer and the Internet that prevents unauthorized access to or from your network. A firewall can be a computer using firewall

software or a special piece of hardware built specifically to act as a firewall. In most circumstances, a firewall is used to prevent unauthorized Internet users from accessing private networks or corporate LAN's and Intranets.
A firewall watches all of the information moving to and from your network and analyzes each piece of data. Each piece of data is checked against a set of criteria that the administrator configures. If any data does not meet the criteria, that data is blocked and discarded. If the data meets the criteria, the data is passed through. This method is called packet filtering.

A firewall can also run specific security functions based on the type of application or type of port that is being used. For example, a firewall can be configured to work with an FTP or Telnet server. Or a firewall can be configured to work with specific UDP or TCP ports to allow certain applications or games to work properly over the Internet.

Firmware

Program that is inserted into programmable read-only memory (programmable read-only memory), thus becoming a permanent part of a computing device.

Fragmentation Threshold Value

Indicates how much of the network resources are devoted to recovering packet errors. The value should remain at its default setting of 2,432. If you experience high packet error rates, you can decrease this value but it will likely decrease overall network performance. Only minor modifications of this value are recommended.

Fragmentation

Breaking a packet into smaller units when transmitting over a network medium that cannot support the original size of the packet.

IEEE

The Institute of Electrical and Electronics Engineers

IEEE 802.11b/g standard

The IEEE 802.11b/g Wireless LAN standards subcommittee formulates standards for the industry. The objective is to enable wireless LAN hardware from different manufacturers to communicate.

Infrastructure Mode

A client setting provides connectivity to an Access Point. As compared to Ad-Hoc mode where PCs communicate directly with each other, clients set in Infrastructure mode all pass data through a central Access Point. The Access Point not only mediates Wireless network traffic in the immediate neighborhood but also pro-vides communication with the wired network. An integrated wireless and wireless and wired LAN is called an Infrastructure

configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

LAN (Local Area Network)

Local Area Networking (LAN) is the term used when connecting several computers together over a small area such as a building or group of buildings. LAN's can be connected over large areas. A collection of LAN's connected over a large area is called a Wide Area Network (WAN). A LAN consists of multiple computers connected to each other. There are many types of media that can connect computers together. The most common media is CAT.5 cable (UTP or STP twisted pair wire.) On the other hand, wireless networks do not use wires; instead they communicate over radio waves. Each computer must have a Network Interface Card (NIC), which communicates the data between computers. A NIC is usually a 10Mbps network card, or 10/100Mbps network card, or a wireless network card. Most networks use hardware devices such as hubs or switches that each cable can be connected to in order to continue the connection between computers. A hub

simply takes any data arriving through each port and forwards the data to all other ports. A switch is more sophisticated, in that a switch can determine the destination port for a specific piece of data. A switch minimizes network traffic overhead and speeds up the communication over a network.

NAT (Network Address Translation)

For a computer to communicate with other computers on the Internet, it must have an IP address. An IP (Internet Protocol) address is a unique 32-bit number that identifies the location of your computer on a network. However, with the explosion of the Internet, the number of available IP addresses is simply not enough.

This is where NAT comes to the rescue. Network Address Translation allows a single device, such as a router, to act as an agent between the Internet (or "public network") and a local (or "private") network. This means that only a single, unique IP address is required to represent an entire group of computers.

Roaming

The ability to use a wireless device is able to move from one access point range to another without losing the connection.

RTS/CTS Threshold Value

It should remain at its default setting of 2,347. A preamble is a signal used to synchronize the transmission timing between two or more systems. A series of transmission pulses is sent before the data to indicate that someone is about transmit data. This ensures that systems receiving the information correctly when the data transmission starts.

Shared Key

It's when both the sender and recipient share a secret key. Both units use this key for an extended length of time, sometimes indefinitely. Any eavesdropper that discovers the key may decipher all packets until the key is changed.

Signal Strength

The signal level indicates the strength of the signal as received at the wireless network interface.

SSID (Service Set Identifier)

It's the unique name shared among all points in a wireless network. The SSID must be identical for all points in the network. It is case sensitive and must not exceed 32 characters.

TCP/IP

Transmission Control Protocol (TCP) with Internet Protocol (IP). The main internetworking protocol used in the Internet.

UDP (User Datagram Protocol)

UDP provides a procedure for application programs to send messages to other programs with a minimum of protocol mechanism. The protocol is transaction oriented, and delivery and duplicate protection is not guaranteed. Applications requiring ordered reliable delivery of streams of data should use the TCP.

What is Router?

A router is a device that forwards data packets from a source to a destination. Routers forward data packets using IP addresses and not a MAC address. A router will forward data from the Internet to a particular computer on your LAN. A router also determines the best route that data packets should follow to ensure that the data packets are delivered properly.

WEP (Wired Equivalent Privacy)

A data privacy mechanism based on a 40 bit shared key algorithm, as described in the IEEE 802 .11 standard. The optional cryptographic confidentiality algorithm specified by IEEE 802.11 used to provide data confidentiality that is subjectively equivalent to the confidentiality of a wired LAN medium that does not employ cryptographic techniques to enhance privacy.

WPA (Wi-Fi Protected Access)

Wi-Fi Protected Access, a specification to improve the security level of wireless networks. It uses 802.1x and EAP to control network access. Temporal Key Integrity Protocol (TKIP) is

used to secure data during transmission.

5. TCP/IP Port List for Internet Service

The list of TCP/IP Port for Internet service is as following table. Please note that the list is just for your reference. You may check the service provider's manual to see more details.

Service Name	TCP	UDP	Notes
AOL	5190-5193	5190-5193	American OnLine
AOL ICQ	5190, dyn >=1024		Message
AOL Instant Messenger	5190	5190	American OnLine
Citrix ICA	1494, dyn >=1023	1604, dyn >=1023	Remote application access
DirectX Gaming	47624, 2300-2400	47624, 2300-2400	many network games
Distributed.Net RC5/DES	2064		Distributed computation
DNS		53	Domain name Service
Doom	666	666	Network game
FTP	21		File Transfer Protocol
Glimpseserver	2001		Search engine
Gopher	70		
H.323 Host Call	1720	1720	H.323 host call
HTTPs	443		Secure HTTP (SSL)
ichat client, server	4020	4020	Chat rooms
ICU II	2000-2003		Videoconferencing
iSpQ	2000-2003		Videoconference
LDAP	389	389	Lightweight Directory Access Protocol
Mirabilis ICQ	dyn >=1024	4000	Locator, chat
MS ICCP	1731	1731	Audio call control (Microsoft)
MS Netmeeting	dyn >=1024,	dyn >=1024	Video conference
MS NetShow	1755	1755	Streaming video
MSN Gaming Zone	28800-29000	28800-29000	Network Game
MSN Messenger	1863		Instant messenging
Netscape Conference	6498, 6502	2327	Audio conference
NNTPs	563		Secure NNTP news (SSL)

Palm Computing Network Hotsync	14237	14238	Data synchronization
pcAnywhere	5631	5632	Remote control
POP3	110		Post Office Protocol Version 3
QuickTime 4	RTSP	RTP	Streaming audio, video
Real Audio & Video	RTSP, 7070	6970-7170	Streaming audio and video

Remotely Possible (ControlIT)	799		Remote control software by CA
RTSP	554		Real Time Streaming Protocol
SMTP	25		Simple Mail Transfer Protocol
SOCKS	1080		Internet proxy
Squid	3128	3130	Web proxy cache
SSH	22		Secure Shell
Telnet	23		
Timbuktu	1417-1420	407	Remote control
ULP	522	522	User Location Protocol
Virtual Places	1533		Conferencing
VocalTec Internet Phone	1490, 6670, 25793	22555	Video conference
Win MX	6399	6399	Peer to Peer file exchange
Xing StreamWorks		1558	Streaming video
Yahoo Messenger – messages	5050		Message
Yahoo Messenger – Webcam	5100		Video

- **Above TCP/IP Port List is from the following web page: http://www.akerman.ca/port-table.html (The copyright is belong to the writer of the web)**

FCC Statement

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause interference to radio communications. This equipment has been tested and found to comply with the limits for a class B computing device pursuant to Subpart J of Part 15 of the FCC rules, which are designed to provide reasonable protection against radio interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

WARNING! Any changes or modifications to this product not expressly approved by the manufacturer could void any assurances of safety or performance and could result in violation of Part 15 of the FCC Rules.

CE Declaration of conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class B for ITE and EN 50082-1. This meets the essential protection requirements of the European Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

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